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Technical Communication: sector and profiles between past and innovative future

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INTRODUCTION

The aim of this master's degree research dissertation is to analyse and describe the evolution of Technical Communication on many levels and consider different European regions. The analysis will also explore and investigate the many professional profiles that have arisen since Technical Communication was born.

More specifically, my analysis will focus on how Technical Communication was born, how it evolved through the years to satisfy market needs and what professional profiles have been developed in the meantime.

The reasons that lead me to write this dissertation are mainly two: on the one hand, since there are no master's degrees o bachelor's degrees in Technical Communication in Italy, I hope that through my work I can spark the interest of students and teachers towards this field and therefore stimulate the creation of new academic courses and studies. On the other hand, I hope that my work also helps regulate and accelerate the procedures for the formal recognition of the profession in Italy as well as in many other European (and non-European) countries.

The documents used for this dissertation are varied: I decided to take into consideration academic resources, but will also include a plethora of online and web resources such as articles, publications, videos, and extracts from online meetings and conferences, as well as some interviews that I had with some top experts in this field.

This dissertation is divided in 5 main chapters:

1. In the first one I will analyse, define and describe what "Technical Communication" means per se, going through its history and its constituent elements.
2. In the second one I will analyse all the different professions and professional profiles that revolve around Technical Communication as well as all the instruments used in this field; I will talk about software, CMS and CCMS, manuals, STE and ITS.
3. In the third one I will analyse the Italian situation through a reverse time travel: I will start from the modern era and will go back in time, focusing on the academic and working background of people who work in the field of technical communication as well as focusing on their current professional profiles and occupation.

4. In the fourth one I will make a comparison between Italy and both the rest of Europe and the rest of the world, analysing the current situation thanks to the help of the data provided by tekom Europe, which also has branches outside of Europe itself.

5. In the fifth one I will provide an outlook on the future, trying to figure out what the future holds for us, what challenges we must face and what problems Italy may have to deal with.

CHAPTER 1 - WHAT IS TECHNICAL COMMUNICATION?

1.1 A general definition of technical communication

Before diving into the true core of the profession known as "Technical Communicator", it is fundamental to analyse and describe what technical communication is, what the term means and how it has evolved throughout time.

For a better understanding of the subject, I decided to opt for a wide variety of sources to gather several different definitions and meanings for this term. The main resources used for this aim were the websites https://www.technical-communication.org/ and https://www.comtec-italia.org/ ; on the one hand, the latter was used because it gives a general overview of technical communication in Europe, and provides a lot of useful information about the field and the term itself. On the other hand, the former gave me a better understanding of how technical communication was and still is perceived in Italy. I will now rely on the definitions taken from these two websites to discuss about what technical communication really means.

The first one, as previously anticipated, is taken from the website https://www.technical-communication.org/ and I found this exact definition:

"*Technical communication is the process of defining, creating and delivering information products for the safe, efficient and effective use of products (technical systems, software, services).[1]*"

As we can see from the above definition, the main focus of technical communication is on the creation, the definition and the delivery of information products. This is made to give the final users a safe, efficient and effective use of products, which may be intended as either technical systems, software or services.

Ever since humans started producing things, they felt the need to communicate with each other for a series of reasons, which include but are not limited to:[2]

- *share their ideas with others before they create the product,*

- *show the finished products to others,*

- *explain what their products are good for and how they can be used,*

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[1] https://www.technical-communication.org/technical-communication/defining-technical-communication
[2] https://www.technical-communication.org/technical-communication/defining-technical-communication

- *warn them about misuse of the product to prevent damage or personal injuries,*

- *train others how to use the products in the intended way, or*

- *offer their products for sale.*

The https://www.technical-communication.org/ website, on the webpage that I referred to[3], also offers a very clear and straightforward visual image of the so called "Information life cycle" which is, in my opinion, vital for a better understanding of the subject and of the various aims of Technical Communication.
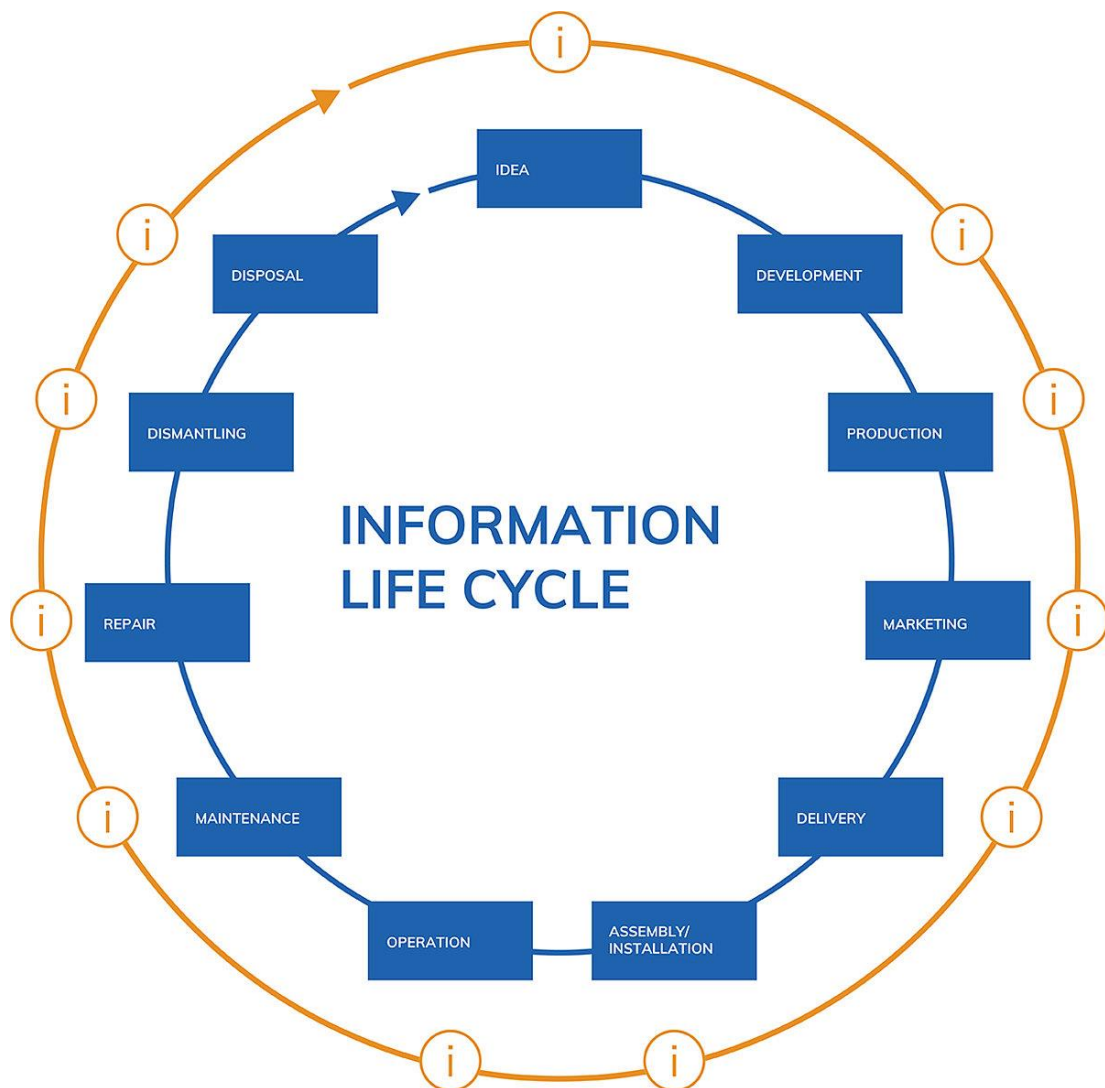
As we can see from the above picture, the starting point is the idea of any given product, service, software and so on. From that, there is a whole series of processes that revolve around the

[3] https://www.technical-communication.org/technical-communication/defining-technical-communication
[4] https://www.technical-communication.org/technical-communication/defining-technical-communication

product itself, ranging from its production all the way to its dismantling and disposal. In short, technical communication accompanies any given product from its "birth" to its "death".

Once again and as previously stated, ever since the creation of the first objects and tools, humans felt a deep need to offer their fellows product-related information which allowed for a better, more knowledgeable, efficient and effective use of the product itself.[5]

Nowadays, both simple-to-use as well as more complex technical products need additional information for use. Due to the evolution of our society, it is preferable nowadays to offer the previously mentioned information through electronic media which can be reproduced on any suitable device, but we will talk about this aspect more accurately later on in this chapter. Nevertheless, printed material is still widely common and available nowadays, mainly due to specific demands by customers or for legal reasons.[6]

The above-mentioned information is defined as "information products" and just like how it happens with product development, there is also a process that involves information and that is defined either as "information development" or "technical documentation" or "technical communication".[7]

A very effective depiction of information development can be found on the https://www.technical-communication.org/ website, on the webpage that I referred to[8]:

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[5] https://www.technical-communication.org/technical-communication/defining-technical-communication
[6] https://www.technical-communication.org/technical-communication/defining-technical-communication
[7] https://www.technical-communication.org/technical-communication/defining-technical-communication
[8] https://www.technical-communication.org/technical-communication/defining-technical-communication

From the above picture we can understand how we can identify a taxonomy to describe the creation and development of information products; it is divided into 1 core process (the management process) with seven steps which include three to seven sub-steps each. It all starts with several rows of analysis which include:

- legal requirements
- normative requirements
- target groups
- Countries
- products and technology
- media and ICT
- and the process ends with the final output of a result.

After this row of analysis, technical information moves on to:

- planning
- concept creation
- information creation, which is the proper development and formulation of information products
- media production
- Provision

- And feedback gathering

This model, as stated on the webpage that I referred to, was developed in 2014 by tekom Europe.[9]

1.2 Technical communication in Italy

As previously mentioned, the second source that I decided to take into consideration is the definition of "technical communication" by COM&TEC. It can be found on the https://www.comtec-italia.org/ website on the webpage that I referred to[10]:

"***Cos'è esattamente la Comunicazione Tecnica?***

*La Comunicazione Tecnica è il **processo con cui si creano, progettano e distribuiscono contenuti su prodotti e servizi in modo chiaro, efficace e sicuro per spiegarne e migliorarne l'uso e la vendita**.*

L'informazione e la Comunicazione Tecnica descrivono, presentano e aiutano a vendere prodotti e servizi.

*La Comunicazione Tecnica segue il ciclo di vita del prodotto e come il prodotto deve essere **progettata, realizzata, distribuita e manutenuta da professionisti esperti con competenze specifiche.***

*E' così che **la Comunicazione Tecnica** diventa una ricchezza aziendale a cui dedicare altissima attenzione per trasformarla in un **importantissimo fattore competitivo e di posizionamento sui mercati**.*

*L'Innovazione e la Tecnologia supportano e sono parte di questo processo.***"**

And here I would like to propose a translation for this definition:

"**What is the exact definition of Technical Communication?**

Technical communication is the **process through which information products are designed, created and delivered by means of clarity, effectiveness and efficiency. The aim of technical communication is to explain and improve products usage and sales.**

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[9] https://www.technical-communication.org/technical-communication/defining-technical-communication
[10] https://www.comtec-italia.org/chi-siamo/

Information and Technical Communication are used to describe, present and help selling products and services.

Technical Communication follows the life cycle of any given product and just like the former, **it has to be designed, created, delivered and maintained by professionals with specific knowledge.**

That is why **Technical Communication** has become a core element through which **any company might achieve better competitivity and market placement.**

Innovation and technology both support and are part of this process."

As we can see from the above definition, and by making a quick comparison with the previous one provided on page 9 of this dissertation, which was found on the https://www.technical-communication.org/ website, it is clear that the focus of both is the same. On both pages Technical Communication is presented as the design, creation and delivery of information products, and both websites also explain and illustrate the life cycle of the information product itself.

1.3 The evolution of Technical Communication

Just like any other human activity, it is possible to say that Technical Communication has undoubtedly undergone an evolution process which has led to its modernization; not only in the way it is delivered, but also in the way it is designed and produced, in order to optimize effectiveness and efficiency as well as to provide clearer instructions for the final users.

As a matter of fact, nowadays there is a lot of talk about the digitalization of many areas of our lives which include but are not limited to[11]:

- Smart services
- Smart mobility
- Smart home
- e-Health
- Sharing economy
- Smart factory

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[11] https://www.technical-communication.org/technical-communication/intelligent-information

- Industry 4.0
- Internet of things

While that is true, it is not possible to say the same, at least at the moment, for technical communication. The hype deriving from all of these social and economic transformations has failed to reflect - or at least it has partially failed to reflect- on the analog world of Technical Communication.[12]

While it is true that many businesses and firms do use CCMS (Component Content Management Systems, more about it later on in this dissertation) as their editorial system, their main focus, according to surveys by tekom Europe[13] has been to try and focus on the efficient creation and translation of user information. Much of the end-user experience has been mostly ignored and there has been no comparable evolution and modernization in that sense. In addition to that, in spite of the growing diffusion and availability of mobile and portable devices, there has not been a comparable implementation and integration of "mobile documentation", either conceptually or technically.[14]

For this reason, in the future it will be fundamental, according to tekom Europe, to improve and deliver individualized, content-sensitive user information, integrating the former in the digital value creation chain, improving the overall user experience. This means that, based on the different target groups and use cases, it will be fundamental to arrange a whole variety of delivery media, which include but are not limited to:[15]

- Paper (classic "analog" manuals)
- On-screen (information which is embedded in the device)
- Online (information which is accessible through the Web or can be downloaded on-demand)
- Mobile (accessible via smart devices such as tablets, smartphones etc)
- Augmented Reality (visualized via data visors or mobile devices)

From the above list it is possible to understand how, in spite of the recent changes in our society and its evolution and transition towards a "Smarter" world, it is still necessary to have a wide variety of product information media in order to satisfy any customer's needs.

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[12] https://www.technical-communication.org/technical-communication/intelligent-information
[13] https://www.technical-communication.org/technical-communication/intelligent-information
[14] https://www.technical-communication.org/technical-communication/intelligent-information
[15] https://www.technical-communication.org/technical-communication/intelligent-information

On top of all of this and according to each single case, older and "non-digital" product information could be required or even mandatory, as it is in the following instances analysed by tekom Europe[16]:

- The users want it, especially in the case of household appliances, home electronics, do-it-yourself tools and so on.
- Customers demand it, as in the case of industrial customers who need the information in difficult use environments such as construction sites.
- Existing legal requirements regarding the availability of user information, particularly with regards to product safety and safe use.

1.3.1 Paper vs electronic delivery

Once the analysis on the evolution of Technical Communication delivery has been carried out, it is now relevant, in my opinion, to briefly analyse the advantages of electronic delivery instead of the traditional paper one. As stated in the https://www.technical-communication.org/ website on the webpage that I referred to[17], paper is no longer suitable for concepts like Industry 4.0, since it might result as an obstacle rather than a means to achieve a goal, which is that to provide the end user with up-to-date information products. On the contrary, electronic delivery offers the following advantages[18]:

- Clear relevance to the product
- Easier to find manuals and product information
- Broader availability
- Individually customizable information products
- Modularization of the information products
- Being researchable
- Being updatable

With that being said, it is clear how electronic delivery offers a higher usability of the provided information, adding value to the final product. The improved "user experience", which is one of the main focuses of current-era businesses, will allow both private and commercial users to take advantage of the new and improved possibilities to make the most of their information products.

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[16] https://www.technical-communication.org/technical-communication/intelligent-information
[17] https://www.technical-communication.org/technical-communication/intelligent-information
[18] https://www.technical-communication.org/technical-communication/intelligent-information

1.3.2 The importance of information for use in electronic form – Position paper by tekom Europe et al.

Following the growing importance of the digital world in everyday life, the European Union has started to take a few, yet important, steps towards the digitalization of information for use. However, due to a lack of clarity in the current Product Safety Directives, the envisaged growth and development of information for use in electronic form is now at a standstill. The main issue at the moment seems to be the very strict requirements for companies providing instructions in digital form: they are obliged to provide, upon customer's request, the paper version of their information for use within 7 calendar days.[19]

For these reasons, and due to the constant commitment by tekom and its associates to further develop and expand the application of digital solutions, a position paper was created. It is aimed at politicians and demands "*clarification of the use of digital instructions*[20]".

In order to support their ideas, the signatories of this paper decided to give 5 main reasons according to which "The future belongs to digital instructions":

- Instructions in digital form are **sustainable**, because they can be provided and distributed in any number, they do not require to be re-printed in case of updates and can save a lot of space and paper by avoiding to be printed in languages that are not required.
- Instructions in digital form **increase safety** because they enable the search function, thus providing the required information more rapidly.
- Instructions in digital form **support accessibility** and can provide users with **additional assistance**: they enable font enlargement, text-reading and add extra features like chatbots, tutorials, online help and videos.
- Instructions in digital form are **more flexible**: they can be accessed from anywhere, at any time, even offline. They can also be integrated with one another in case of complex machinery assembled by different manufacturers.
- Instructions in digital form **promote future technologies**: they support modern usage scenarios, like VR (augmented reality) glasses or remote services.

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[19] https://www.technical-communication.org/technical-communication/position-paper-instructions-in-digital-form

[20] https://www.technical-communication.org/technical-communication/position-paper-instructions-in-digital-form

Therefore, based on this position paper, it is clear that the European Union will have to take quick action in order to satisfy the evolving market needs and by doing so it will also be possible to reduce the environmental impact generated by businesses and to promote digitalization.

1.4 tekom's solutions to embrace digitalization

The previous chapters and sub-chapters have shown that a broader use of digital and electronic instruments may help provide more valuable and long-lasting information products for the final users. This is the reason why the European Professional Association for Technical Communication (tekom) has come up with two different yet complementary solutions: one is an initiative and it is called "Intelligent Information Initiative – IN3" and the other one is a new standard, rather than an initiative and its name is "iiRDS", which stands for **i**ntelligent **i**nformation **R**equest and **D**elivery **S**tandard.

1.4.1 Intelligent Information Initiative – IN3

The first solution proposed by the European Professional Association for Technical Communication (tekom) "*hopes to motivate its members to confront the explosive changes accompanying digitalization.*"[21] It is named "Intelligent Information Initiative – IN3" and its main purposes are:

- the use of structured creation methods and the use of CCMS including promoting metadata
- to apply accepted technical standards for content structure as well as for the exchange, connection and integration of content
- to integrate target group analyses, use analyses and the creation of use cases and media concepts in their process
- to focus on a comprehensive "User Experience – UX" in the future and to create excitement about information products among users

As we can undoubtedly understand by reading the aims of this project, it is clear that it is and will be a great solution for the future, in order to counter the mild reticence and unwillingness to adopt smart solutions for the end users. Together with this project, the European Professional Association for Technical Communication (tekom) has also decided to adapt a new standard for intelligent information that will be discussed in the following sub-chapter.

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[21] https://www.technical-communication.org/technical-communication/intelligent-information

1.4.2 tekom iiRDS

Following the evolution of the age of digitalization and IoT (Internet of Things), the field of Technical Communication is preparing to embrace a new era[22]. This is why the European Professional Association for Technical Communication (tekom) has decided to develop a new standard for Intelligent Information. This solution is named iiRDS, which stands for **i**ntelligent **i**nformation **R**equest and **D**elivery **S**tandard and aims at delivering intelligent information[23] independently from different industries and manufacturers. By doing so, there is a double advantage, both for manufacturers and for customers: on the one hand the latter can supply several final users with the information for use they require and on the other hand the former can easily integrate information coming from various manufacturers in their systems. The whole point of this new standard is the use of standardized metadata[24], which helps make the content semantically accessible for any end-user and enables information documentation to be shared and used even across manufacturers boundaries.

Let us now analyse two different situations thanks to two illustrations by Cristoph Attila Kun found on the https://www.technical-communication.org/ website on the page that I referred to[25]:

Christoph Attila Kun, VDI 2770

[26]

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[22] https://www.technical-communication.org/technical-communication/iirds
[23] https://www.technical-communication.org/technical-communication/iirds
[24] https://www.technical-communication.org/technical-communication/iirds
[25] https://www.technical-communication.org/technical-communication/iirds
[26] https://www.technical-communication.org/technical-communication/iirds
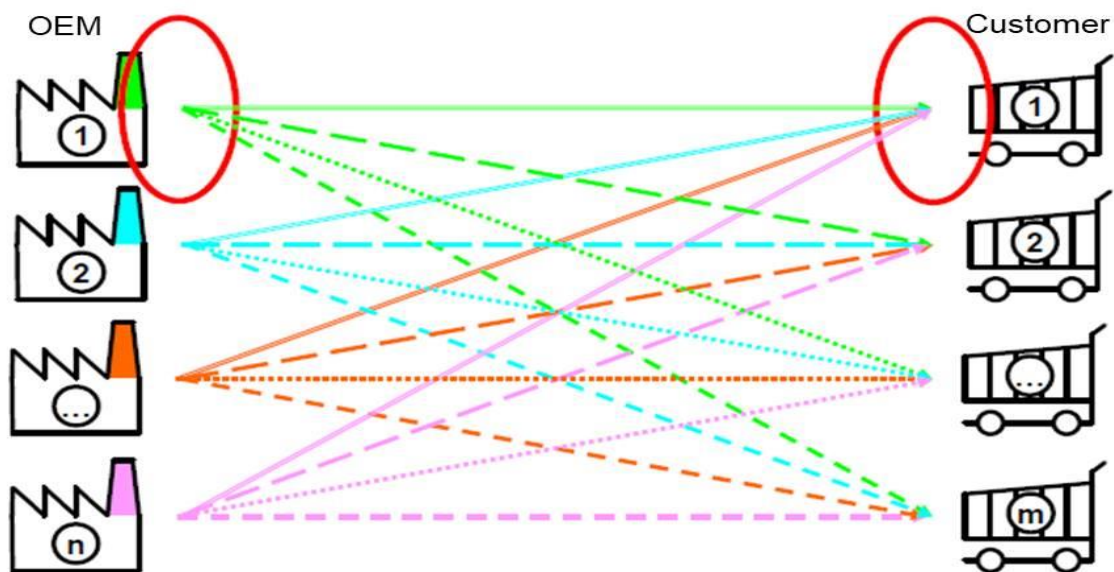
In this first situation it is immediately understandable how the several manufacturers have to communicate in many different ways and using different types of protocols to get to their final users. Therefore, this implies an enormous waste of time to adapt the communication of technical documentation to each single end-user. As a consequence, this might result in an implicit extra-cost for the business itself.
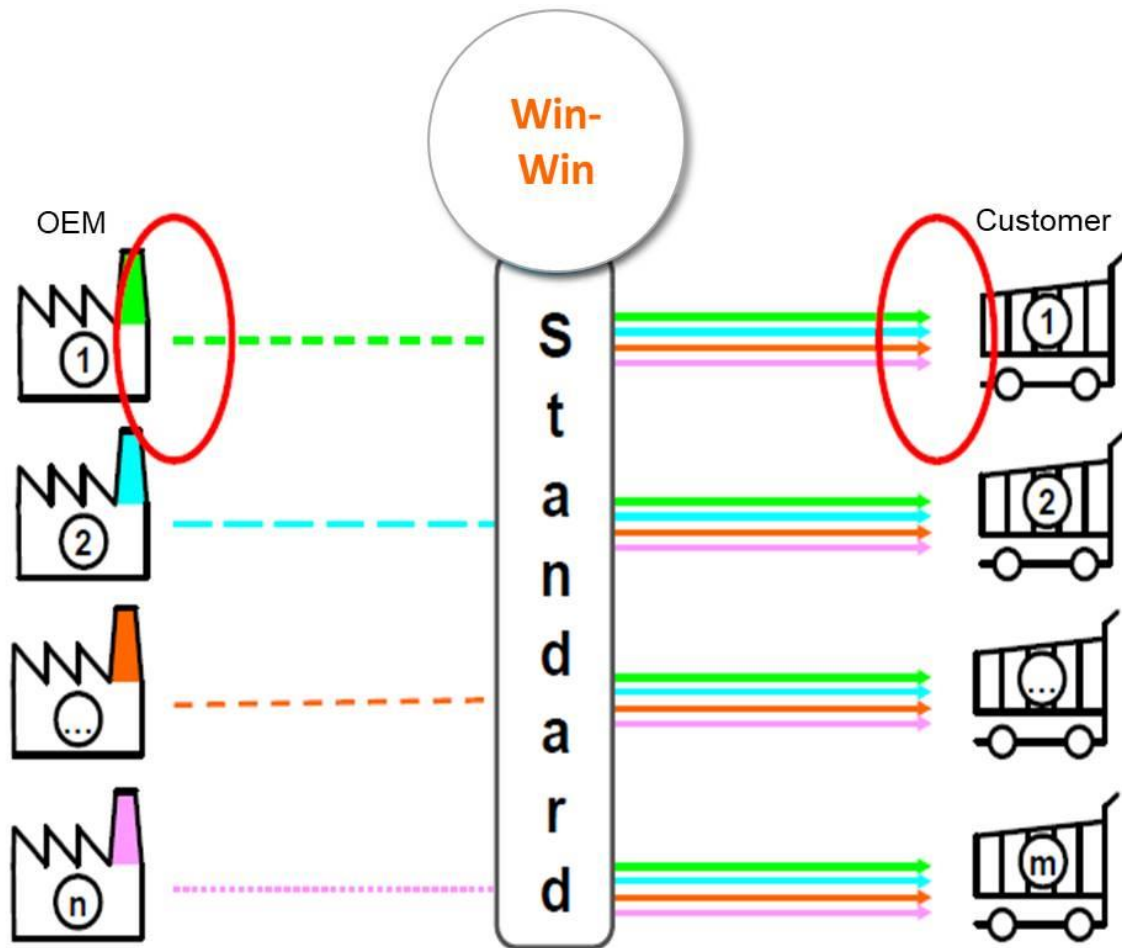
Christoph Attila Kun, VDI 2770

[27]

On the other hand, this second illustration by Cristoph Attila Kun shows the implementation of standardized meta-data in the communication between manufacturers and end-users. Each single manufacturer only prepares its own set of technical documentation and then shares it to their customers via the iiRDS standard. The data is then passed on to the final customers which receive them in a unified way. By doing so, tekom Europe hopes to achieve the aims proposed at the beginning of sub-paragraph 1.4.2.

[27] https://www.technical-communication.org/technical-communication/iirds

1.5 Important standards in Technical Communication

Just like almost any other profession, Technical Communication has its own standards to follow. The aim of this is to ensure the best possible quality in information and technical documentation, which consequently allows for a safe and correct use of any given product, from the simplest to the most complicated one. Through the years the standard has evolved several times and the state of the art is IEC/IEEE 82079-1. It is now fundamental in my opinion to go back in time and examine the evolution of this standard and its predecessors.

1.5.1 European directives and regulations, laws, standards

Before diving into the evolution of the norm itself, it is important to understand the several fields of application of technical documentation-related requirements, as well as the differences between European directives, European laws and European regulations. These cover a variety of different areas which are:

- Product liability
- Product safety
- Work organization
- Design/usability (both of product and of TD)
- Dissemination of information

As for the first two, the rules are now enacted in the European Union either in the form of European directives or regulations or in the form or European or international standards.

As far as work organization, design/usability and the dissemination of information are concerned, these also have their origins in the European or international framework but there are also several national bodies of rules which regulate these areas.[28]

1.5.1.1 European directives

As stated in the https://www.technical-communication.org/ website on the page that I referred to[29], European directives are not addressed directly to citizens or companies of the European Union,

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[28] https://www.technical-communication.org/technical-communication/important-standards-in-technical-communication/legal-and-normative-bases-for-technical-documentation
[29] https://www.technical-communication.org/technical-communication/important-standards-in-technical-communication/legal-and-normative-bases-for-technical-documentation

but rather these are instructions to the governments of the EU Member States to implement the provisions enacted by the EU in their respective national legislations.[30]

1.5.1.2 From European directive to national law

The following step, as briefly stated in the previous sub-paragraph, is to implement the European directives in the national legislation, by turning them into national laws. It is therefore essential for any professional to be prepared well in advance to deal with the new or newly-amended directives.[31]

1.5.1.3 European regulations

As opposed to European directives, which have no immediate impact on citizens or organizations, and are not directly addressed to them, European regulations have a legislative character in all EU Member States and do not need to be implemented at a national level in order to be effective.[32] Nevertheless, the provisions contained in European regulations are not conclusive and give Member States the opportunity to expand them; therefore, it is essential for any professional not only to be careful in examining European regulations, but also to be extremely careful in examining the national provisions.

1.5.1.4 From European directive to harmonized standard

The combination of European regulations, European directives and national laws which derive from them, sets requirements of the European product safety regulations and directives in technical standards at a general level. The EU Commission then mandates the European Standards Organizations (which are CEN, CNELEC and ETSI) to complete the requirements and add details to these norms in order to develop the standards. At this stage, companies also provide their help in developing the standard, as tekom Europe and COM&TEC have done in the past years and keep on doing up to this day. The standards are later published in the Official Journal of the EU accompanied by the word "harmonized".[33]

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[30] https://www.technical-communication.org/technical-communication/important-standards-in-technical-communication/legal-and-normative-bases-for-technical-documentation

[31] https://www.technical-communication.org/technical-communication/important-standards-in-technical-communication/legal-and-normative-bases-for-technical-documentation

[32] https://www.technical-communication.org/technical-communication/important-standards-in-technical-communication/legal-and-normative-bases-for-technical-documentation

[33] https://www.technical-communication.org/technical-communication/important-standards-in-technical-communication/legal-and-normative-bases-for-technical-documentation

A picture that I found on the https://www.technical-communication.org/ website on the page that I referred to[34], synthetises this procedure perfectly:

1.5.1.5 New Legislative Framework

Since 2008 all European directives have been enacted through the so called "New Legislative Framework" (NLF), that aims at a better harmonization of the norms through the use of standard terminology as well as a stricter and more efficient market surveillance and import control.[35]

1.5.2 A time travel through Technical Communication norms and standards

After providing a general overview on the differences between European directives, European regulations, national laws and harmonized standards, it is now fundamental to make a time travel to identify the history of Technical Communication standards and norms. As previously stated in the introduction to paragraph 1.5, the state of art is the 2019 standard IEC/IEEE 82079-1, but we are only "scratching the surface" of this immense matter. Before the aforementioned standard there were the IEC 62079-1:2001[36][37] which was then replaced by the 2012 IEC 82079-1[38]. As an

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[34] https://www.technical-communication.org/technical-communication/important-standards-in-technical-communication/legal-and-normative-bases-for-technical-documentation

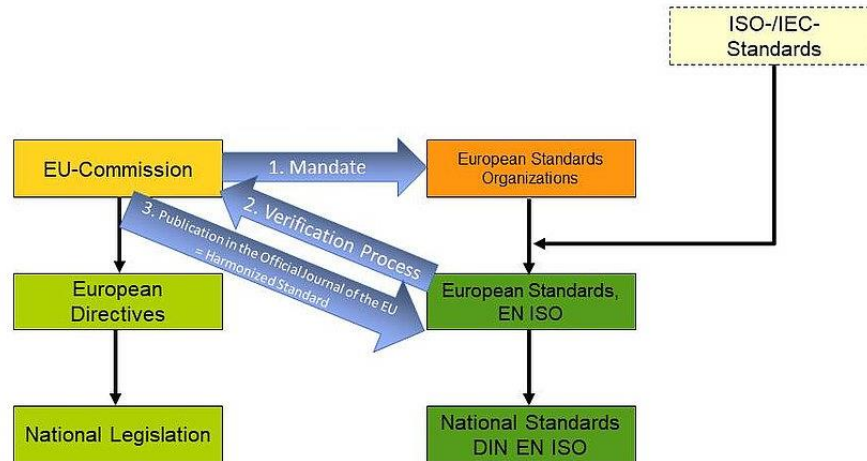[35] https://www.technical-communication.org/technical-communication/important-standards-in-technical-communication/legal-and-normative-bases-for-technical-documentation

[36] https://www.ap-publishing.com/comunicazione-tecnica/la-revisione-della-norma-tecnica-iec-82079-12019/

[37] https://www.comtec-italia.org/event-140/

[38] https://www.comtec-italia.org/event-140/

additional step, it is also important to consider other European directives, such as the 98/37/EC which was then replaced by the Machinery Directive 2006/42/EC.

In addition to all the aforementioned norms, there are then industry-specific norms just like the AECMA / ATA / S1000D for military aircrafts, the OASIS DITA for e-business applications as well as country-specific norms like the UNI 10653:2003 "Technical documentation quality" and the UNI 10893:2000, just to mention a few of them.[39]

Although this may seem like a labyrinth for Technical-Writers-to-be, it is fundamental that anyone working in this field knows all the various norms, regulations and national laws in order to carry out an effective and efficient production of any given Technical Documentation product.

In the following sub-chapters, an analysis of the most important norms and regulations will be provided.

1.5.2.1 IEC 62079-1:2001

The above-mentioned standard, whose full definition is "*Preparation of instructions - Structuring, content and presentation (IEC 62079:2001)*" was approved by CENELEC on 01/11/2000[40] and contained prescriptions, regulations and requirements *to be followed when creating instructions for users of products[41]*. This standard was later on replaced in 2012 by the first version of the IEC 82079-1[42].

1.5.2.2 IEC 82079-1:2012

The IEC 82079-1:2012, whose full definition is "*Preparation of instructions for use — Structuring, content and presentation — Part 1: General principles and detailed requirements*"[43] was approved on 08/08/2012 by the ISO/TC 10[44][45] and was meant to be the substitute for the IEC 62079-1:2001 mentioned in the previous sub-paragraph. It constituted a technical revision of the previous norm and introduced some changes as follows[46]:

- The "terms and definitions" section went from 20 to 43 terms

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[39] https://www.comtec-italia.org/event-256/
[40] https://cdn.standards.iteh.ai/samples/13828/7a2c92ca25fb4abc8523088e23c65381/SIST-EN-62079-2002.pdf
[41] https://cdn.standards.iteh.ai/samples/13828/7a2c92ca25fb4abc8523088e23c65381/SIST-EN-62079-2002.pdf
[42] https://www.ap-publishing.com/comunicazione-tecnica/la-revisione-della-norma-tecnica-iec-82079-12019/
[43] https://www.iso.org/standard/55833.html
[44] https://www.iso.org/standard/55833.html
[45] https://webstore.iec.ch/publication/7511
[46] https://www.sviluppoeinnovazione.it/istruzioni-per-luso-la-norma-iec-82079-12012/

- The new standard stressed on the importance of an adequate analysis on reference groups and information coherence

- Information about security was added and/or expanded

- The use of electronic devices was expanded, due to the state of art

- A chapter on "conformity assessment" was added

This standard was then replaced by its revision, named "*IEC/IEEE 82079-1 Preparation of information for use (instructions for use) of products - Part 1: Principles and general requirements*" in May 2019.

1.5.2.3 IEC/IEEE 82079-1

Before diving into the description and the analysis of the revised standard, it is important to analyse the path that led to its revision. In order to do so, I would like to show a graphic visualization of the whole revision process, shared by Dr. Claudia Klumpp, tekom, at the TC World Conference in 2018[47]:
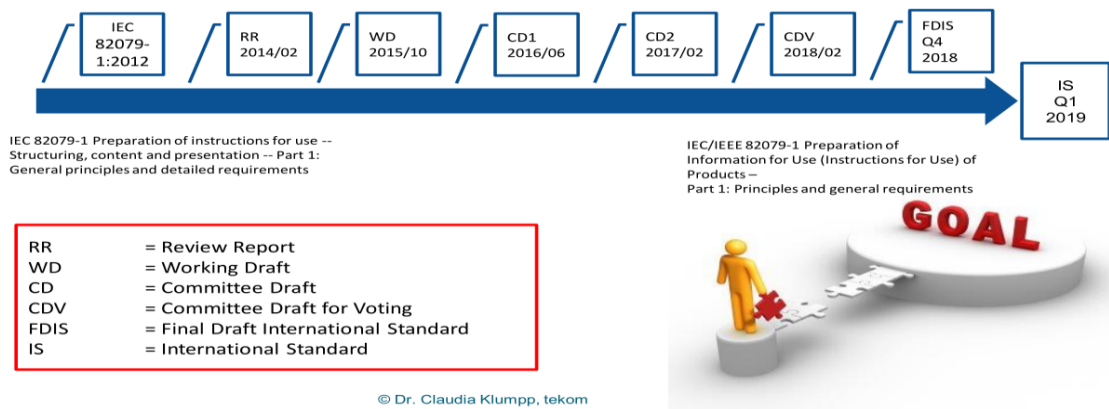
As we can clearly see from the above picture, the process started back in February 2014 with the review report; a working draft was then prepared in October 2015 which was followed by two Committee Drafts: one in June 2016 and the other one in February 2017. In order for the revision to be approved, it was then submitted to the Committee Draft for Voting in February 2018 and

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[47] https://www.technical-communication.org/fileadmin/tekom.eu/Technical_Communication/The_Standard_82079-1/2182_What_s_New_The_IEC_IEEE_82079_1_Revised_What_You_Should_Know_about_the_Upcoming_New_Version_.pdf

subsequently a Final Draft International Standard was produced in Q4 2018. Ultimately in Q1 2019 the revised International Standard was approved and published.

As previously stated, the IEC/IEEE 82079-1, whose full title is "*IEC/IEEE 82079-1 Preparation of information for use (instructions for use) of products - Part 1: Principles and general requirements[48]*", is the state-of-art for modern Technical Communicators. As far as changes in the new standard are concerned, if compared to the pre-revision IEC 82079:2012, the new revision introduces[49]:

- The participation of IEEE, apart from ISO and IEC which were already present during the drafting of the old standard
- A revised title
- A new concept of information for use
- A new structure
- Conformity assessment for the information for use and the information management process
- A series of new clauses: "Information management process", "Structure of information for use", "Means, format, and media of information for use", "Professional competencies"

The most noticeable variation at the "surface level" is of course the change in title, since it went from:

"IEC 82079-1 Ed.1 Preparation of instructions for use – Structuring, content, and presentation – Part 1: General principles and detailed requirements"[50]

to:

"IEC / IEEE 82079-1 Ed. 2 Preparation of information for use (instructions for use) of products – Part 1: Principles and general requirements"[51][52]

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[48] https://www.technical-communication.org/tekom/news/an-important-milestone-in-the-revision-of-the-standard-iec/ieee-82079-1-has-bees-achieved

[49] https://www.technical-communication.org/fileadmin/tekom.eu/Technical_Communication/The_Standard_82079-1/2182_What_s_New_The_IEC_IEEE_82079_1_Revised_What_You_Should_Know_about_the_Upcoming_New_Version_.pdf

[50] https://www.technical-communication.org/fileadmin/tekom.eu/Technical_Communication/The_Standard_82079-1/2182_What_s_New_The_IEC_IEEE_82079_1_Revised_What_You_Should_Know_about_the_Upcoming_New_Version_.pdf

As clearly explained by Dr. Klaudia Klumpp in her presentation[53], the change from "instructions for use" towards "information for use" broadened the horizons of Technical Documentation by including information describing the product as well as reference material, in addition to the pre-existing descriptions of activities and operations to be performed.

Another key change in the updated standard, as clearly stated by Mr. Alessandro Pratelli in one of his articles[54] on his website is the fact that the revision now provides the Technical Communicator with a method to draft Technical Documents.

1.5.2.4 From 98/37/EC to 2006/42/EC

Let us now switch from something broad and relatively general to something more specific, which talks about machinery.

On June 22nd 1998 the European Parliament and the European Council published the 98/37/EC directive to directly address "*the approximation of the laws of the Member States relating to machinery*". It established the essential health and safety requirements of any type of machinery sold after the implementation of the norm.

In 2006 the 98/37/EC was substituted by the 2006/42/EC, better known as "Machinery Directive" or "New Machinery Directive". As of today, it counts 2 editions and several revisions all the way up to 2020. It is still one of the main directives to consider when writing technical documentation for any given machinery and its accessories.

1.5.2.5 An outlook on the future

As disclosed by the European Commission, there is a proposal to draft a new regulation on machinery products. tekom Europe, however, expressed some concerns on the current revision of the draft, in a position paper published on 15/08/2022[55]:

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[51] https://www.technical-communication.org/fileadmin/tekom.eu/Technical_Communication/The_Standard_82079-1/2182_What_s_New_The_IEC_IEEE_82079_1_Revised_What_You_Should_Know_about_the_Upcoming_New_Version_.pdf
[52] M. Fritz, C. Klumpp, M. Tillman, M. Rieder, R.Schmeling, S. Schneider, Implementation of IEC/IEE 82079 – 1 Ed.2, pp. 17
[53] https://www.technical-communication.org/fileadmin/tekom.eu/Technical_Communication/The_Standard_82079-1/2182_What_s_New_The_IEC_IEEE_82079_1_Revised_What_You_Should_Know_about_the_Upcoming_New_Version_.pdf
[54] https://www.ap-publishing.com/comunicazione-tecnica/la-revisione-della-norma-tecnica-iec-82079-12019/
[55] https://www.technical-communication.org/fileadmin/tekom.eu/Technical_Communication/tekom_Europe_Position_Paper__Revision_of_the_Machinery_Directive2022_08_15.pdf

- *tekom Europe welcomes the alignment with the NLF and supports the proposed wording: 'Manufacturers shall ensure that the machinery products are accompanied by the instructions and information set out in section 1.7 of Annex III in a language which can be easily understood by end users, as determined by the Member State concerned. Such instructions and information shall be clear, understandable, intelligible and legible.'*
- *tekom Europe supports instructions in digital formats being allowed explicitly in the regulation for all kinds of instructions, e.g. assembly instructions.*
- *tekom Europe appreciates and supports the clear definition of 'instructions', which is applicable to format and media-independent. In the regulation, the intended definition stands for 'instructions for use'; however, as explained below, tekom Europe suggests the term 'instructions' instead of 'instructions for use'.*

As we can understand from the above statements, it is clear that the European Association for Technical Communication tekom agrees with the European Union on the need to introduce a new regulation on machinery products, but feels the need to clarify certain aspects and terms of the current Directive, before a new one takes its place.

1.6 Terminology

After exploring the depths of European and national directives, regulations and laws, it is now time to tackle the very last topic of this first chapter. The aim is to briefly introduce the key role of terminology in Technical Communication. A deeper analysis will be provided in chapter 2, talking about the different "instruments" that a Technical Communicator can rely on when carrying out his or her job.

1.6.1 Terminology of Technical Communication

As stated on the https://www.technical-communication.org/ website, on the page that I referred to[56]: "*Terminology is the bread and butter of technical communication.*" The sheer importance of terminology in Technical Communication is absolutely clear from the above-mentioned quotation. This is the reason why the European Association for Technical Communication tekom has decided to create a database[57] that can be accessed for free by anyone, which contains the main "dos and don'ts" of Technical Communication terminology. Its name is

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[56] https://www.technical-communication.org/technical-communication/terminology
[57] https://tekom.termtechnologies.com/

"termxplorer" and it divides words according to the following criteria: "*preferred*", "*admitted*" and "*do not use*" words. It constitutes a valid instrument for any Technical Communicator.

Here is a screenshot of the database, with the research term being "administrator manual":
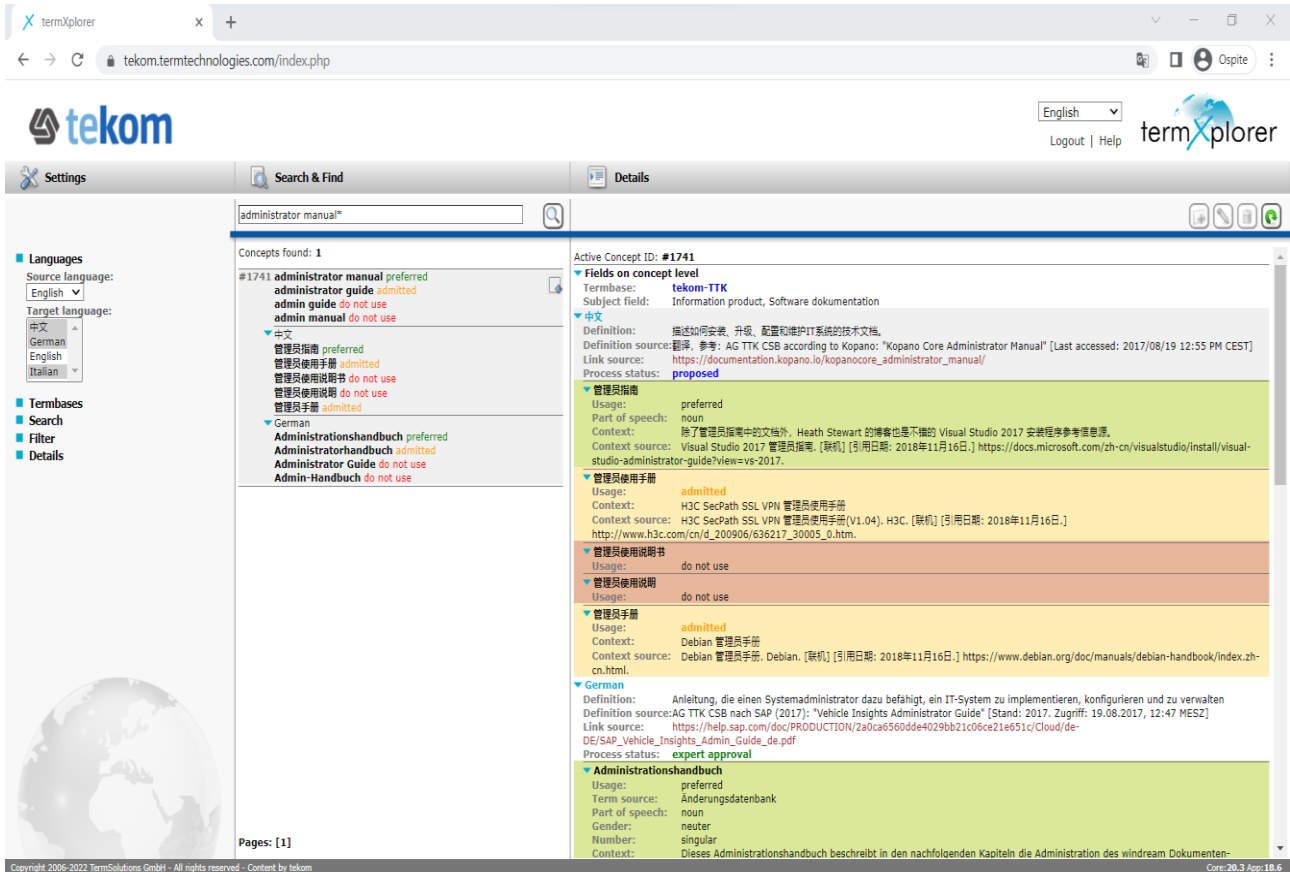
As we can see from the above picture, the database divides the words according to the aforementioned criteria and also offers valid translation in other languages, both European and non-European.

1.7 How Technical Communication is perceived by experts

As a final step, since any job is carried out by people and since this is a research thesis, I also decided to take into consideration the various interviews that I made during my research, since I asked every participant what technical communication meant for him or her and what would be a general definition in his or her own words.

1.7.1 How Technical Communication is perceived by Mr Carlo Gardini – Vice President of COM&TEC

-The following is an excerpt from the interview-

Gabriele: *"Mr Gardini, how do you perceive Technical Communication?"*

Mr Gardini: *"I perceive Technical Communication as a strategic asset for any company. It is becoming increasingly important for businesses because it is an added value for the product itself, for many reasons: it allows the end users to make the most of their products, it offers short-term returns on investment, it minimizes machinery downtime and last but not least it is a great way of presenting your business to customers."*

1.7.2 How Technical Communication is perceived by Mr Gianni Rimorini – CEO of NETCOM (service company in TC)

-The following is an excerpt from the interview-

Gabriele: *"Mr Rimorini, how do you perceive Technical Communication?"*

Mr Rimorini: *"Technical Communication is about the use of any product, of any mechanical appliance. We focus on the machinery sector and we work on automatic machinery more specifically, but we also create information for use and instructions for consumer appliances, which are of course simpler and are mainly made of pictures. To sum up, it entails communicating the end users how to use a certain product."*

1.7.3 How Technical Communication is perceived by Mr Alessandro Pratelli - CEO of AP Publishing (service company in TC)

-The following is an excerpt from the interview-

Gabriele: *"Mr Pratelli, how do you perceive Technical Communication?"*

Mr. Pratelli: *"In my opinion, Technical Communication aims to describe and communicate in a safe way, how to use a product, how to install it, how to service it and it also means to allow the end user to fully enjoy any product. This has to be considered as part of the manufacturer vs end-user context, which is a matter of growing importance nowadays."*

1.7.4 How Technical Communication is perceived by Ms Vilma Zamboli – CEO of Writec (service company in TC)

-The following is an excerpt from the interview-

Gabriele: *"Ms Zamboli, how do you perceive Technical Communication?"*

Ms Zamboli: *"Technical Communication is my passion, because it combines all my personal passions. I love languages, English, French, Russian, Spanish but I also love communication in general as well as art. Technical Communication means for me to create, out of nowhere, something that doesn't already exist. And it is something that is in someone else's mind. This is what really fascinates me about technical communication. We technical communicators start by interviewing the technical staff to get an idea of how the end user will use the product and how to create the appropriate information for use. Therefore, technical communication entails a creative aspect, which is typical of any artist, as well as a more technical one."*

1.7.5 How Technical Communication is perceived by Dr Michele Pighi – CCMS Consultant and Content Strategist at Writec (service company in TC)

-The following is an excerpt from the interview-

Gabriele: *"Michele, how do you perceive Technical Communication?"*

Michele: *"I perceive technical communication as a combination of methods and processes, through which you design, create and transform information. The aim is to teach the end user how to do something, in the most clear, effective, unambiguous and safe possible way. Technical communication has to be extremely clear and unambiguous, and these characteristics do not belong to other types of communication."*

CHAPTER 2 – TECHNICAL COMMUNICATION AND ITS PROFESSIONS

2.1 A young profession, with a history[58]

In spite of the relatively recent[59] talk about the professions in Technical Communication, its history dates back to as far as the early 20th century.

It is clear that the history of the technical writer is undoubtedly connected to the advancement in technology, to the creation of new and cutting-edge products as well as to the evolution of language. The quintessential nature of technology makes it hard to understand and operate, therefore explanation is needed in most cases. That is why technology and its information for use are complementary.

As previously anticipated, the history of technical communication could be set to date back to the early 20th century: the oldest and still existing set of instructions for use was created in 1900 by Benz and it describes the "patent motorcar".[60]

However, talking about more modern development, there is no doubt that the major and most significant changes were introduced with technological industrialization in the 19th century. Many new machines were created and with the contributing factor of electrification, many new home appliances became part of everyday life, such as refrigerators, ovens and radios.[61] Of course, as previously mentioned, since none of the new machinery was self-explanatory, there was a growing need for manuals, instructions for use and information for use.

In addition to all of this, due to the growing popularity of the aforementioned items and also due to mass production, manufacturers were no longer able to orally explain the functioning of their products to each single customer. Therefore, instructions for use became part and parcel of any given product but were developed and written by the same engineers who had created the machinery.

The path for the recognition of the occupation, the profession and the product was still long, if we consider that we are talking about the early 1960's. As a matter of fact, the first official

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[58] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/history-of-the-profession

[59] 1996

[60] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/history-of-the-profession

[61] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/history-of-the-profession

appearance of the term "technical writer" was only recorded in 1996, upon tekom's initiative, under the occupation code number 8214 in Germany's Federal Labour Office.[62]

2.2 Anyone can become a Technical Communicator!

There are many ways to embark on a career in technical communication. Occupational field in the different working contexts hosts people from all sorts of professional and educational backgrounds.

This means that becoming a Technical Writer is not limited to people with "technical" degrees and learning backgrounds, but it is also open to people with a series of different studying and professional backgrounds. In the following chapters and sub-chapters, we will analyse this matter in a broader way. Technical writers can work in all different kinds of sectors, ranging from machinery to medical devices or software documentation. While the field may vary, all technical writers share the same tasks, competences, and standards of reference (with some slight changes based on the nation, due to national laws that may or may not be present).

2.3 Many paths to the same profession

Although it may vary depending on each single country, there are mainly three ways to become a technical writer, according to the https://www.technical-communication.org/ website:[63]

1. Undergraduate or graduate studies at a college or university
2. Training for people with a university degree in a different field or with vocational training in a specialized field
3. tekom internship for college or university graduates with a degree in a different field or for those who have left school

2.3.1 Studies and Study Programs in Technical Communication

Studying Technical Communication means "*becoming an expert in imparting the knowledge of technology*"[64], under the points of view of language, visual sciences and using multimedia. One of the main reasons that leads students to go into the field of technical communication is

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[62] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/history-of-the-profession
[63] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/paths-to-the-profession
[64] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/paths-to-the-profession

professional diversity. In spite of that, there are many more reasons, as stated on the https://www.technical-communication.org/ website, on the page that I referred to[65]:

- *Interest in communication and languages*
- *Interest in technology*
- *Interest in communication management*
- *Handling media and technology*
- *Interest in designing and visualizing*
- *Variety of study content*
- *Internationality*
- *Good professional prospects*

In addition to all of this, according to the website https://www.technical-communication.org/, "*89% of students state that their expectations for the study program were fully satisfied*".

Even though study programs in the field of technical communication may or may not exist in every country, in Germany, Austria and Switzerland there is a wide range of degrees in technical communication[66]:

- Most of them are undergraduate study programs resulting in either a BA[67], B.Sc[68] or BEng[69]
- Some colleges and universities offer Master's Degree programs
- There are job-related study programs resulting in the "Professional Master of Science" degree

Apart from all of the afore-mentioned study programs, there is also a variety of specialization-related studies that allow students to take on a job in Technical Communication.

2.3.2 Lateral entry via training

As it often happens, people may want to change professions and work as "lateral entrants" in a completely new field. Technical communication offers a valid choice in this sense. According to

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[65] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/paths-to-the-profession
[66] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/paths-to-the-profession
[67] Bachelor of Arts
[68] Bachelor of Science
[69] Bachelor of Engineering

the https://www.technical-communication.org/ website, on the page that I referred to, lateral entrants often come from either one of these fields[70]:

- Engineering sciences
- Technical occupations
- Translation
- Linguistics
- Media sciences

Other graduates from different fields may also gain a professional foothold in technical communication, as stated in the https://www.technical-communication.org/ website[71]; even non-graduates or people with no initial professional education in a relevant specialized technical field may have good job prospects in fields like medical technology, consumer goods, software development, automobile industry or with service providers.[72]

Training programs are therefore divided in four categories:

1. For people with no previous knowledge in technical communication there are full-time training programs which also include an internship and end up with a certificate as "Technical Communicator" provided by tekom

2. For technical writers who have not directly studied technical communication or for people who can't pursue full-time training there are job-related part-time programs which are similar to traineeship programs

3. For ambitious lateral entrants who already have a solid job and are willing to expand their knowledge, there are certain Master's degrees in technical communication that can help them achieve their goals

4. For those who have left school as well as for university graduates in other specialized areas there is a specific internship by tekom

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[70] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/paths-to-the-profession

[71] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/paths-to-the-profession

[72] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/paths-to-the-profession

2.3.2.1 Ways of achieving lateral entry in technical communication

Lateral entry in technical communication may be achieved in different ways and due to several different factors[73]:

- An internal change in the company, switching to technical documentation

- Direct application for a position in technical communication

- Developing a range of services in the field of technical communication

However, the true key for success in this field, as stated on the https://www.technical-communication.org/ website is a specific qualification, which can be provided either by tekom Europe or, as in the case of Italy, by COM&TEC, but we will see more of this in the designated chapters and sub-chapters.

2.3.3 tekom internship

As already mentioned in sub-chapter 2.2.2, tekom offers an internship program that is aimed at providing graduates of technical, natural, social or humanities-related programs with a path that leads to a certificate in Technical Communication[74]. This option is also for people who have left school and would like to take on a challenge in a field full of possibilities.

2.4 The true professions of Technical Communication

After analysing the history of the profession and giving some information on how to access a job in the field of Technical Communication, it is now important to talk about the professions that can be developed. My reference for the following sub-chapters of this dissertation is the website https://www.technical-communication.org/ under the sections "Outline of Technical Communication> Technical Writer" and "Outline of Technical Communication > Technical Translators". I referred to this specific website because it gives an excellent overview on the topic and contains all the necessary information.

2.4.1 Technical Writers

According to the definition by the https://www.technical-communication.org/ website

"*Technical writers make modern technology comprehensible.*"

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[73] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/paths-to-the-profession
[74] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/paths-to-the-profession

Technical writers are specially trained and qualified specialists who create all kinds of information for use for a wide variety of products, which include but are not limited to:

- *Operating instructions, e.g. for smartphones*

- *Online help, e.g. for software*

- *Assembly and service manuals, e.g. for industrial systems*

- *Information for use, e.g. for medicinal products*

- *Digital on-board manuals, e.g. for automobiles[75]*

However, the professional title known as "Technical Writer" is alternatively known as "Technical editor", "Technical Author" and "Technical Communicator". That is because it comprises a series of specific tasks which can all be carried out by specialists with different competences and professional backgrounds. Further details on the matter will be given in the following paragraphs.

2.4.1.1 Technical writer and much more!

Based on the size of the business, the technical writer or communicator could be a generalist who takes care of the whole information development process or could be supported and assisted by peers with different tasks. That is the reason why there are 9 different job descriptions according to the website https://www.technical-communication.org/ on the page that I referred to[76]:

Junior Technical Writers / Technical Writers: Develop concepts and strategies, and manage content, depending on the position. They research information and create or update media content for the various information products and publish these in different media.

Team Managers / Managers in an Editorial Department: Bear the overall responsibility for the creation of technical documentation and make strategic and economic decisions. They may also be responsible for personnel. Their tasks consist primarily of planning and management of information development. They define the framework such as, for example, concepts and internal specifications. They also drive innovation in their area.

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[75] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/technical-writer

[76] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/technical-writer

Project Managers: *Are responsible for specific projects, the implementation of which they plan, manage and monitor, however, without direct leadership tasks or responsibility for personnel. They also often supervise special projects such as tool introduction.*

Terminologists: *Compile specialist and area-specific terms and define their use and corresponding translations. They maintain these in a special terminology management system. In the team, they develop new designations, e.g. for products or parts, and provide these for use company-wide.*

Proof-readers: *Ensure content quality through formal (e.g. spelling and grammar) as well as substantive checking and adaptation of the terms used (e.g. for consistency).*

Translation Managers: *Plan and manage the translation or localization of content in different target languages and are contact persons for translators or translation service providers.*

Technical Translators: *Translate source texts into their respective target languages. Depending on the individual language, they also localize these to the country-specific conditions and cultural differences. They work with different translation methods (among others, machine translation) and in technical communication, use special software systems such as translation memory systems.*

Law and Standards Compliance Officers / CE: *Are the experts on product safety, performing risk assessments and ensuring that information products are brought onto the market in compliance with the law.*

Media Developers: *Are responsible for the development of different media on which product information is made available.*

The above list gives a very clear idea of how many specific professionals could be required in any given business, depending on its size and on the organization of the work. However, a very important distinction has to be made, according to the https://www.technical-communication.org/ website, since the creation of any given information products needs a translation which is carried out on average in 12 languages[77]. Later on in this chapter, I will analyse the profession known as "Technical translator".

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[77] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/technical-translators

2.4.1.2 Professional competences for Technical Writers

Due to the sheer nature and complexity of technical communication, technical writers need a wide variety of competences from different fields. The https://www.technical-communication.org/ website sums them up perfectly, as follows[78]:

- *Communication, Languages and Culture: This field requires, among others, linguistic competences, reliable command of the language and capabilities for target audience-oriented communication, knowledge of terminology, intercultural understanding, and knowledge of multilingual workflow and translation.*

- *Content and Media: Technical writers need the capability to research information, develop use case and target audience-based multimedia content, structure and visualize content, and prepare content adapted for different media. This includes pedagogic and didactic knowledge, media competence and knowledge of legal and normative requirements for content.*

- *Regulations and standards: At some point, every technical writer is faced for the first time with the issue of which legal and normative aspects to take into account in his/her day-to-day work. During all the professional career, technical communicators must take into account all the rules, regulations and standards to be compliant with the technical information development. Referring to the right ones is the most challenging task but also the most significant aspect of this highly appreciated aspect of this profession.*

- *Products, Technology and Technologies: Technical writers have a general understanding of technology as well as sector-specific product knowledge. Moreover, they have knowledge of many different media and information technologies at their command, as well as the ability to use specialized software tools.*

- *Management: Technical writers have organization, planning and management skills in order to carry out information development projects or manage content. Moreover, they are familiar with the basics of quality management. Employees in leadership positions also require capabilities in managing employees and skills in business management.*

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[78] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/technical-writer

Even though a distinction can be made between "technical writers" and "technical translators", they share a large part of the aforementioned competences, which can be deemed as valid for both categories, with the appropriate differences.

2.4.1.3 Technical Writers working sectors

It is clearly understandable that the wide variety of competences needed to carry out any job as a technical communicator, calls for a wide variety of working sectors where Technical Communicators are employed. Here is a list of some of the most typical sectors for technical writers[79]:

- Machine and plant engineering

- Drive and control technology

- Software development

- Medical technology

- Automobile industry

- Consumer electronics and IT

- Consumer goods and household items

- And any new environmentally sustainable sectors

However, a special service provider sector has emerged in recent years, and it is home for many technical writers[80]:

- Service companies and freelancers who create complete or partial technical documentation on order

- Service providers for translation

- Manufacturers of system software for the creation of technical documentation

- Business consultants, e.g. for system rollout of software, process optimization in editorial work and much more

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[79] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/technical-writer
[80] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/technical-writer

2.4.2 Technical translators

Due to the fact that the boundaries between Technical Communicators and Technical translators are fluid, according to the https://www.technical-communication.org/ website[81], Technical communicators need knowledge in the field of translation and vice versa. That is why Technical Translators fall under the umbrella term of "Technical Writers" but may have deeper or different knowledge from the former. Therefore, a deep connection and cooperation between these two figures is absolutely necessary in all applicable cases.

Technical translators and their specific field take care of a specialized type of translation. It is distinguished by[82]:

1. Translation of technical content: information on technical products or software systems

2. Special form of language: primarily informative, descriptive and explanatory

3. Use of technical media and multimodality: various input and output media

4. Localization: taking country specifics into account, technical and legal/normative, and the cultural requirements of the target market

5. Specific work processes: modular construction of source texts, translation of updates

6. Use of special tools: software systems, translation memory systems, terminology management systems and solutions supported by machine learning and AI

2.4.2.1. Specific skills for technical translators

In spite of sharing most of their knowledge base with technical writers, technical translators also require a specific set of specialized skills. A perfect recap of these can be found on the https://www.technical-communication.org/ website on the page that I referred to[83]:

1. Translation skills and linguistic knowledge of the target language

2. Sector-specific specialized and technical knowledge

3. Knowledge of terminology management

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[81] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/technical-translators

[82] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/technical-translators

[83] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/technical-translators

4. Knowledge of reference, standards and guidelines

5. Knowledge of tools

6. Skills in technical communication and the creation process

7. Knowledge of linguistic and cultural science

8. Abilities in project management

Despite this short yet highly-specific set of skills, it is important to remind once again that Technical Translators must also have a solid knowledge of technical communication in general, since their work is carried out starting from information products created by technical communicators. As previously stated in sub-paragraph 2.4.1.2 "Professional competences for Technical Writers", technical translators and technical writers should work hand in hand to ensure the best possible result.

2.5 Instruments and resources for technical communicators

Now that the analysis on the profile has been carried out, it is time to talk about the various resources for any technical communicator. In this sub-paragraph and in the following ones I will talk about CMS, CCMS, STE and ITS.

2.5.1 CMS – Content Management System

One of the many tools, yet one of the most important ones, for any business and for any Technical Communicator is a CMS. The word stands for **C**ontent **M**anagement **S**ystem, which is in simpler words a computer software that "*is used to manage the creation and modification of digital content*"[84].

In general, a CMS is comprised of two main parts:

- a CMA, which stands for **c**ontent **m**anagement **a**pplication and represents the front-end user interface
- a CDA, which stands for **c**ontent **d**elivery **a**pplication and allows webmasters[85] to comply the content and update the website.

Now that we have analysed what a CMS is, it is time to understand why it may be useful in the field of Technical Communication and what advantages it has over traditional content management.

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[84] https://en.wikipedia.org/wiki/Content_management_system
[85] *Person responsible of maintaining one or more websites*, from https://en.wikipedia.org/wiki/Webmaster

In a tekom survey which dates back to as far as 2005, it was shown that the implementation and use of CMS software can help avoid redundancy and improve coherence in companies who need to manage great amounts of content and terminology, which may also be in several different languages.[86]

The 2005 survey carried out by tekom has also shown that businesses willing to take Content Management Systems in consideration, decided to adopt them for the following reasons[87]:

- reutilization of previous content to create new information for use products and/or for different target users
- creation of user-specific or product-specific information for use (individualization)
- localization, creation of national alternatives
- creation of different layout versions
- usage of databases (i.e. parts catalogues, parts data)
- creation of catalogues
- management of semantically-linked content
- the need for XML source files and universal content usage
- foreign languages management
- active terminology management
- usage of translation memories and CAT tools

The survey also showed that the use of CMS had the following benefits[88]:

- better coherence in the creation of information products
- content re-utilization
- elimination of redundancy during translation
- the possibility to be integrated in ERP, PPS and similar systems
- automation in the publishing process
- intermodal publishing

2.5.2 CCMS – Component Content Management System

In spite of the great impact of CMS software in Technical Communication, evolution of modern technology has led to the creation of even better-performing and smarter solutions. The evolution of CMS software is the so called CCMS software, an acronym for **C**omponent **C**ontent

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[86] https://www.comtec-italia.org/eventi-item.php?id=245
[87] https://www.comtec-italia.org/eventi-item.php?id=245
[88] https://www.comtec-italia.org/eventi-item.php?id=245

Management **S**ystem. It still is a content management system, but it "*manages content at a granular level*[89]". For software documentation CCMS software, there are some specific requirements[90]:

- Contents are no longer treated as one-time use "chunks", but rather they are archived in a database as if they were real and tangible "goods"; by doing so, content is stored in one single place that can be accessed by different members of the same company

- Thanks to the implementation of an XML model, additional information is added to each information chunk and this allows for the content to be stored on different levels; by doing so, Smart Documents are created and these help in the process of technical documentation creation and translation.

Let us now sum up the main advantages of using a CCMS[91]:

- Centralized and unified content management; contents are created once, they are stored with all their details in a coherent way, in a place where they can be easily accessed. By doing so, content dispersal is avoided, due to the use of one single software

- Effective and efficient content search; thanks to the integration of structured information with plain information, data can be accessed and found easily and in a customizable way

- Benefits for several business departments; every department involved in the design and production of technical documentation and translation can benefit from the integration of CCMS

- Translation optimization; by constantly updating the contents in the CCMS, it is possible to make the translation more effective and efficient; what is already stored in the CCMS can be brought back with ease and any new document will only require translation for the portions of the text that do not already have a translation in the translation memory

2.5.3 STE – Simplified Technical English

After analysing the software resources that improve the effectiveness and efficiency of any Technical Documentation-related job, it is now time to talk about the standards in technical writing.

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[89] https://en.wikipedia.org/wiki/Component_content_management_system
[90] https://www.free-edit.com/ccms-i-vantaggi-per-la-documentazione-tecnica/
[91] https://www.free-edit.com/ccms-i-vantaggi-per-la-documentazione-tecnica/

One of the main and most important resources in this field is the so called "STE", which stands for "**S**implified **T**echnical **E**nglish".

According to the https://asd-ste100.org/ website, as of today "*English is the international language of science, technology and human relations. It is also the language of the aerospace and defense industry.*" In spite of that, in most cases English is not the native language for technical documentation users and many people may have a relatively limited knowledge of the language. For these reasons, the many synonyms and the often-complex sentence structure of the English language may cause confusion for non-native speakers.

In any technical field, a correct understanding of usage, procedures, and operations on any given machinery is essential. Therefore, considering the aforementioned reasons, a language standardization was and still is needed. That is why on June 30, 1998, the AECMA Simplified English Working group was founded and the AECMA Simplified English Project started.[92]

As a result of this working group, the so called "AECMA Simplified English Guide" was created in 1986. In 2005 this "guide" evolved and became the "Simplified Technical English Specification, ASD-STE1000".

As of today, the STE standard has acquired great popularity, going past and beyond the intended original purposes. It is one of the most important standards for technical documentation, language services, professional translation and interpreting and in the academic world in general.[93]

2.5.4 ITS – Italiano Tecnico Semplificato

Since this Master's Degree dissertation is focused both on Europe in general as well as on Italy, as previously mentioned in the introduction, it is now important to also talk about the writing standards for Italian Technical Communicators. According to the https://www.italianotecnicosemplificato.it/la-storia/#page-content website, in the past a lot of valid technical documentation has been created, but unfortunately it did not respond to the correct standards. The problem was that it did not comply with the objectives and the guidelines of a simplified and controlled technical language[94].

For this reason, COM&TEC came up with a solution to this problem: the creation of a brand-new project, whose aim is to solve problems related to technical language. That is why ITS was born.

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[92] https://asd-ste100.org/
[93] https://asd-ste100.org/
[94] I. Gobbi, ITS Italiano Tecnico semplificato, pp.7

2.5.4.1 ITS History

ITS stands for "**I**taliano **T**ecnico **S**emplificato" and it is a certified writing process. It is also a registered trademark of COM&TEC and it is protected by copyright.[95]

ITS is a corpus-based project that was created from scratch starting from a synchronic corpus of Technical Documents which were deemed as valid and representative of their category.

As per the definition on the https://www.italianotecnicosemplificato.it/la-storia/#page-content website, ITS is:

"*L'**ITS** è il **Linguaggio** Naturale Controllato della lingua italiana.*"

The translation for the above statement would be:

"ITS is the Natural and Controlled variant of the Italian Language"

According to the website, it is "Naturale" (Natural) because it uses the natural language that developed in the Italian culture; therefore, it is not artificial.

It is "Controllato" (Controlled) because it aims at controlling the language used in prescriptive texts. Just like all the other international languages of the same type, as for instance the aforementioned STE, ITS is made up of a combination of language rules and dictionary rules.

2.5.4.2 How does ITS work?

In order to effectively and efficiently use the ITS standard, it is fundamental to follow the ITS book as if it was a guide. The guide, which is a 166-page book, consists of two parts:

1. Language instructions – it provides the user with grammar notions and writing style
2. A dictionary – it provides the user with words and definitions for a correct use of this controlled language.

2.5.4.3 What is ITS used for?

ITS is used to write any technical documents in Italian. Technical documents are documents with specific requirements concerning a balanced presence of instructions and information. ITS is a great solution to offer valid, simple and clear information for use, both for humans and machinery.

ITS is also used to speed up the writing process of any technical document, even in combination with software for technical writing or technical translation.

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[95] https://www.italianotecnicosemplificato.it/cose-its/#page-content

Finally, ITS is a great way to reduce processing times while writing technical documentation but it also helps reduce the number of words used, subsequently reducing the costs deriving from technical documentation creation and translation.

2.5.4.4 What's new with ITS today?

To meet users and companies needs, ITS now integrates CCMS and other new solutions aimed to support technical communicators, technical translators and terminologists while writing, translating, revising and reviewing.

Technical communicators particularly benefit from the optimization obtained thanks to the use of ITS and new technologies embedded in innovative professional solutions.

CHAPTER 3 – THE ITALIAN SITUATION

3.1 The current situation

Now that a general, yet quite thorough, overview has been provided on what Technical Communication is, what it means, what professional profiles revolve around it and what their job entails, it is now time to analyse what is the state of art of Technical Communication in Italy.

In order to do so, I will rely on data found on the website https://www.comtec-italia.org/ where very detailed information on the matter is provided.

As of today, one of the most recent studies carried out by COM&TEC through their online platforms has managed to create an outline of the professional profile of the Technical Communicator in Italy and it represents a very precious resource for this Master's Degree dissertation. The collected data was obtained through a survey which was submitted to experts all over Italy. The data was then presented at the "COMtecnica Conference 19" event in 2019 and was also made public through a press release on the COM&TEC Website[96].

As for the results of the survey, here is what COM&TEC found out:

34% of Technical Communicators in Italy work in the Emilia Romagna region and half of them work as employees in SMEs in the machinery industry.

Technical Communicators in Italy are highly-experienced professionals, most of them currently work as employees in small or medium enterprises, predominantly in the machinery industry. One in three of them works in the Emilia Romagna region.

So, in short, this is the outline of the professional profile of the Technical Communicator in Italy. The survey was taken both by members and non-members of COM&TEC Italia and represents, as of today, the most updated framework of Technical Documentation and Technical Communication in Italy.

Thanks to the collected data, COM&TEC wishes to inform on the importance of Technical Communication in Italy and promote the competences and true value of Technical Communicators in Italy.

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[96] https://www.comtec-italia.org/news-item/?id=43

Apart from the aforementioned 34% of Technical Communicators working in the Emilia Romagna region, it is important to break down other important data that emerged thanks to this survey[97]:

- 25% of surveyed people work in the Veneto region
- 17% of surveyed people work in Lombardy
- 13% of surveyed people work in Tuscany
- 13% of surveyed people work in the Piemonte region
- 8% of surveyed people work in the Liguria region

For the most part (around 60%), people who took this survey are highly-qualified and experienced professionals who have been working in the field for over 10 years. Almost half of them (49%) work as employees, 27% of them are self-employed professionals and 13% of them are business owners with open-ended contract employees. Almost half of the surveyed participants (around 48%) work in a business enterprise: out of the previous percentage, one in three participants works in the machinery industry, highlighting a very important dominance. 29% of the surveyed participants work in service companies in the Technical Documentation or Technical Communication field and 12% of them in software societies.

The surveyed technical communicators work for the most part in SMEs: 39% of them work in enterprises with less than 10 employees and 31% of them in enterprises with up to 50 employees. However, there are also technical communicators working in large companies: 22% of the surveyed participants works in businesses with up to 250 employees.

The survey has also shown that many research and development projects in the Technical Communication field are being carried out in Italy. These projects aim at identifying cutting-edge technologies in the Industry 4.0 field. Moreover, 76% of surveyed participants said that they work in enterprises where digital instruments and resources for Technical Communication are used. This underlines the several transformations that are happening in this field, going from a "traditional" terminology management to a more "evolved" and "innovative" one[98].

3.2 A reverse time-travel

After analysing the current situation of Technical Communication in Italy and seeing the state of art of Technical Communicators, thanks to the most recent data provided by COM&TEC [99],

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[97] https://www.comtec-italia.org/news-item/?id=43
[98] https://www.comtec-italia.org/news-item/?id=43
[99] https://www.comtec-italia.org/news-item/?id=43

it is now time to make a reverse time-travel to better understand how the professional profile of the technical communicator has evolved through time.

As early as February 2011, COM&TEC shared a press release[100] in which the term "scrittore tecnico" appeared. This combination of words could be translated in English as "Technical Writer" and at that time it represented the official recognition of the professional profile.

In a later press release, dated 03/12/2015[101] COM&TEC assessed a newer definition for the professional profile which was "Comunicatore Tecnico". In the same document, COM&TEC also asserted the following[102]:

"*Le dizioni tradizionali di "manualista", "redattore tecnico" o "technical writer" devono essere ormai considerate poco aderenti alle necessità di un mercato che richiede un profilo professionale "multi-dimensionale".*

L'attività di pura e semplice "scrittura" di un manuale è da considerare solo una delle dimensioni in cui il Comunicatore Tecnico opera.

Questa dimensione rimane al centro della sua attività professionale ma non è più sufficiente, da sola, per definire i diversi ambiti ed i diversi livelli operativi in cui un Comunicatore Tecnico può intervenire."

Which could be translated as:

The traditional definitions of "manual writer" or "technical writer" should now be considered as outdated, since they no longer reflect the current needs of the market, which requires a multi-dimensional professional profile.

The sheer "writing process" of any manual has to be considered as just one of the dimensions in which the Technical Communicator operates.

This dimension lays at the core of his or her job, but it is no longer sufficient, on its own, to define all the different scopes and operational levels that belong to the Technical Communicator.

From the above translation we can understand how the role of the Technical Communicator has undoubtedly evolved through the years, going from the mere writing process of any given

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[100] https://www.comtec-italia.org/event-220/
[101] https://www.comtec-italia.org/event-172/
[102] https://www.comtec-italia.org/event-172/

manual to more complex tasks. On the same page, COM&TEC identifies the all-new set of skills and competences for Technical Communicators[103]:

- Cultural and linguistic competences: Technical Communicators must have a very deep knowledge of their own mother tongue and an excellent knowledge of the technical terms of their field
- Technological knowledge: having to work in this field, it would be impossible to imagine a technical communicator with no knowledge whatsoever about technology. This includes but is not limited to: authoring tools like Microsoft Word and Open Office, HTML editors, blogs, wikis, software for website management, specific technology like XML, XSLT and so on, as well as graphics design tools (CAD), CCMS, standards in writing (DITA, S1000D and so on) and last but not least CAT tools.
- Norms and standards knowledge: Technical Communicators must have a very deep knowledge of norms and standards of the field, with special regards to machinery in general
- Management skills: Technical Communicators must also be able to define the various phases of information product creation.

Now that the reverse time-travel is complete, it is possible to understand how much the professional profile of the Technical Communicator has evolved in just a decade. It went from the simple definition of "manual writer", which is simply someone who writes manuals and instructions for use, all the way to a fully-developed professional with a broad set of skills and knowledge in various fields.

3.3 Academic studies and education

As opposed to the situation presented in sub-chapter 2.3.1 "Studies and Study Programs in Technical Communication", which gave a general overview of studies in Technical Communication in Europe, according to the https://www.technical-communication.org/ website, Italy unfortunately has no BA, B.Sc, BEng nor Master's Degree programs in Technical Communication.

Considering this situation, it is clear that Italy should try to get on par with the rest of Europe and the Italian Association COM&TEC is pushing to achieve this important goal. However, one thing that distinguishes Italy from the rest of Europe is the UNI norm, which is the formal

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[103] https://www.comtec-italia.org/event-172/

recognition of the profession known as "Technical Communicator". Further details will be given in the following sub-chapter.

3.3.1. How to become a Technical Communicator in Italy – COM&TEC

As of today, the only safe and certified way to become a Technical Communicator in Italy is through the so called "CQCT" which is the Italian acronym for "**C**orso di **Q**ualificazione per **C**omunicatore **T**ecnico" (Technical Communicator Qualifying Course). The course is organized and delivered by COM&TEC[104] and it follows the so-called UNI norm 11483:2021 that we will analyse in the following sub-chapter.

The course consists of two different levels:

- Junior level
- Expert level

Furthermore, the Expert level has 2 separate paths which correspond to the two possible paths for Technical Communicators that we saw in sub-paragraphs 2.4.1 and 2.4.2 :

- Technical Writing
- Technical Translation

The CQCT Junior Level course consists of 84 hours in total:

- 60 hours of training
- 24 hours of practice

On the other hand, the CQCT Expert Level course consist of 91 hours in total:

- 59 hours of training
- 22 hours of practice on Technical Writing
- 16 hours of practice on Technical Translation

The whole course consists of several different modules with different contents[105]:

- Technical communication, development and management
- Standards and norms
- Information design
- Technical Writing

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[104] https://www.comtec-italia.org/formazione-29/
[105] https://www.comtec-italia.org/formazione-29/

- Safety and safe information

- Terminology

- Responsibilities and legalities

- Multilingual communication

- LNC, ITS, STE, Corrige.Leggibilità CT

- Accessibility, usability and UX

- Visual CT, AI, VR and MR

- Software documentation

As we can see, even though COM&TEC is the only certified association to provide education in the Technical Communication field, in compliance with the UNI norm 11483:2021, its courses are very rich and detailed and give the Technical-Communicators-to-be all the necessary knowledge to carry out their job in the most efficient and effective way.

3.4 UNI norm 11483:2021

As opposed to almost any other country in Europe, Italy is the only one with a formal recognition of the Technical Communicator professional profile. This recognition was obtained thanks to the continuous work and dedication by COM&TEC and was recognised through the Italian National Unification association. Let us now see what it entails and why it is so important for the Technical Communication field, thanks to a press release by COM&TEC.[106]

It must be said that the UNI norm 11483:2021 is the revision of an older norm, named "UNI 11483:2013", which was released in 2013 by the title "UNI 11483:2013. Attività professionali non regolamentate - Figura professionale del comunicatore - Requisiti di conoscenza, abilità e competenza"[107]. As the Italian title suggests, it contained information and standards on the Professional Profile of the Communicator, knowledge requirements, skills and competences.

This standard was then replaced by the current UNI norm 11483:2021 which is the most updated version as of today. The norm was released in 2021 by the title "UNI 11483:2021. Attività professionali non regolamentate - Comunicatore professionale - Requisiti di conoscenza, abilità e autonomia e responsabilità." The title, as we can see, saw a slight change in its form because apart from the terms "conoscenza" (knowledge) and "abilità" (skills), it substitutes "competenza" (competences) with "autonomia e responsabilità" (autonomy and responsibility).

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[106] https://www.comtec-italia.org/news-item/?id=114
[107] https://store.uni.com/uni-11483-2013

According to the COM&TEC website[108], this revision of the old norm offers a new vision on the future, giving Technical Communicators new possibilities, by adding management skills to the previous set of required competences and knowledge.

The norm was developed by the Work Group UNI/CT 006/GL 06 and defines the requirements for any Technical and Professional Communicator. These requirements are based on specific tasks and responsibilities that derive from knowledge and skills, in compliance with[109]:

- The "Quadro Nazionale delle Qualificazioni (QNQ)" – National Qualifications Framework
- The "Quadro Europeo delle Qualifiche (EQF)" – European Qualifications Framework

The norm also identifies 5 areas of reference which subsequently identify 5 professional profiles:

- Public and institutional communication
- Business communication
- Technical Communication
- Political communication
- Communication for social purposes and for the non-profit sector

The reformed norm also gives important definitions[110]: who is a Professional Communicator, what is Technical Communication and who is the Technical Communicator.

As far as the first definition is concerned, the norm states that the Professional Communicator is a professional who uses communication as a strategic asset for the further development of institutions, public organizations, both profit and non-profit ones, and for people in general. His or her job is cross-disciplinary and entails both management and practical work. The professional communicator can be a freelancer, a business owner or an employee.

Therefore, the professional and technical communicator designs and creates Professional and Technical Communication in compliance with strategies and objectives set by the organization he works for or in.[111]

Moreover, the new UNI norm gives Professional Communicators the correct value and role, by attributing brand new management roles and responsibilities.

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[108] https://www.comtec-italia.org/news-item/?id=114
[109] https://www.comtec-italia.org/news-item/?id=114
[110] https://www.comtec-italia.org/news-item/?id=114
[111] https://www.comtec-italia.org/news-item/?id=114

This new revision of the norm clearly identifies and defines[112]:

- Competences
- Skills
- Autonomy
- Responsibility
- Guidelines for conformity assessment
- Guidelines for the evaluation of learning outcomes
- Ethical and deontological aspects

In addition to what has already been said, this norm is important for 4 main reasons[113]:

1. It helps identify the Professional Profile of the technical communicator and its fields of activity as well as the specific competences and abilities
2. It helps achieve formal recognition both for the professional profile and for its field
3. It helps assess and verify the compliance with the standards in this field
4. It concretely helps the development of both the professional profile and its field

According to the norm and based on the role of the technical communicator in his or her organization, there are three levels[114]:

- Junior
- Expert
- Senior

As a further step, the UNI norm also identifies 6 different phases of any communication process[115]:

1. Analysis
2. Design
3. Actuation
4. Monitoring
5. Evaluation
6. Conclusions

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[112] https://www.comtec-italia.org/news-item/?id=114
[113] https://www.comtec-italia.org/news-item/?id=114
[114] https://www.comtec-italia.org/news-item/?id=114
[115] https://www.comtec-italia.org/news-item/?id=114

Last but not least, according to the COM&TEC website[116], an important note has to be made on this UNI norm: just like any UNI norm, it leads to a qualification for the profession but it is not mandatory to access the profession itself. Moreover, norms like this are applied voluntarily and do not pose any obligations for already-operating professionals.

3.5 Interviews

Finally, since this is a Research dissertation, as anticipated in the introduction, I decided to carry out some interviews with some of the most important Italian experts in this field to talk about their professional profiles and their education in the field of Technical Communication. In the following sub-chapters, I will present the results of my research.

3.5.1 Interview with Mr Carlo Gardini - COM&TEC

-The following is an excerpt from the interview-

Gabriele: "*Mr Gardini, what did you study throughout your career and how did you approach Technical Communication?*"

Mr Gardini: *"I have a Secondary School Diploma in Mechanical Engineering and I got my first job at an engineering office. Later on, I worked in the field of automated machine design; at that stage of my career, I approached the different techniques to manage complex projects and finally, as I entered MG2 as Assistant Manager in the Technical Department […] I approached the technical documentation department; that is because the market was asking for standard-conforming technical documentation. […] I started assisting the people working in the TD department and soon after I had to decide on which path to take; I opted for technical documentation and communication. I thought it was challenging for me […] to try and create, out of nowhere, a technical documentation department, that did not exist in my company back then. From that moment on, I got progressively closer to technical communication, I attended several courses regarding both technical norms as well as technical writing and illustration. The technical documentation department grew during this time, gaining recognition both internally and externally. As of today, the department has grown in size and importance, also due to the fact that our customers focused their attention more on technical documentation rather than the product itself, that they already deemed as valid. […]"*

Gabriele: *"Mr Gardini, how would you define your professional profile?"*

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[116] https://www.comtec-italia.org/news-item/?id=114

Mr Gardini: *"If I had to define my professional profile, I would say Technical Documentation Department Manager. I manage all aspects of the Technical Documentation Department, which is made up of 8 people plus an external group that cooperates with us. Therefore, I analyse all the activities submitted by my company which can be divided in two main levels: the first one involves the distribution of technical documentation related to machinery we have already sold […] and the second one revolves around the development of new projects like the introduction of AR, new technical documentation tools and CMS software or even the creation of video tutorials for our customers, which can be accessed through our website. I also take care of innovation and new challenges in our field, as well as the education of my co-workers. Education in our field is life-long and has to take place in a technologically advanced environment. We offer training courses that entail the use of CMS software, ITS and most importantly which help define and identify the role of technical communicators […] that can no longer be associated only with the professional profile of the technical writer"*

3.5.2 Interview with Mr Gianni Rimorini – NETCOM

-The following is an excerpt from the interview-

Gabriele: *"Mr Rimorini, what did you study throughout your career and how did you approach Technical Communication?"*

Mr Rimorini: *"I have a Secondary School Diploma in Mechanical Engineering. Then I studied graphics design and in 1996 I started working for a Technical Documentation company where we had small databases to manage and create our own documents. From that moment on, I started studying programming and then in the year 2000 I resigned from my job and opened my own business. Since then, I started developing CMS software of my own, that allows to create and distribute contents in different formats. Technical communicators also need knowledge about norms like the machinery directive, the EN ISO 12100, as well as knowledge of the instruments to distribute contents. As far as my education in Technical Communication is concerned, I attended the CQCT course a few times, the ITS course, as well as a few other modules like the AR one, the norms one and so on."*

Gabriele: *"Mr Rimorini, how would you define your professional profile?"*

Mr Rimorini: *"Well, this is kind of a difficult question. I cannot really define myself in a single way. I am a Technical Communicator […] but I also know CMS and CCMS software since I developed one of my own in collaboration with other people. I also have knowledge in software*

development. Moreover, I also have a knowledge of norms and this can be very helpful if you have a business of your own. That is why it is difficult for me to label myself in a single way.

3.5.3 Interview with Mr Alessandro Pratelli – AP Publishing

-The following is an excerpt from the interview-

Gabriele: "*Mr Pratelli, what did you study throughout your career and how did you approach Technical Communication?*"

Mr Pratelli: "*I have a Secondary School Diploma in aeronautics. I started working in 1995 and my first job was in a technical documentation office; at that time, however, few operations were carried out on computers. My first job entailed for instance designing and creating spare parts catalogues. In 1995 the Machinery Directive had not been published yet and I kept on working in the same firm until 2004 when I decided to start my own business: AP Publishing. My true passion for Technical Communication sparked in 2004 when I started "craving" for studies and more knowledge in this field. I remember wondering if there was someone else doing the same job as me, talking about it and trying to understand if there were any standards in this field. I noticed that nobody talked about technical communication, no books were available at that time and neither school nor universities had study programs regarding technical communication. That is why I started looking around and I found the "ProDoc" association which then became "COM&TEC". In 2006 I became a member of the association and from that moment on my education path began, not only with COM&TEC but also with other organizations and people. My main interest then became machinery safety, because I noticed a lack of knowledge in this field in Italy. My passion for these aspects encouraged me to find valid sources in machinery directives and technical norms and documents. Therefore, I looked for machinery safety courses as well as technical writing courses, even though back in 2005/2006 CMS and CCMS software was mostly unknown. […]. My education therefore was first of all "visual", since I started my career visualizing and designing spare parts, but it also included technical writing with the introduction of ITS.*

As for courses in general, I attended many courses in Italy, held by UCIMA, Federmacchine, courses by Italian lawyers working in the machinery directive field […]. I also attended courses held by "gurus" in this field, as far as machinery safety was concerned rather than technical writing. I learned technical writing and how to write manuals by reading technical norms, first of all the 62079 which was then converted in 82079. […] As I previously said my focus has always been on machinery, plants and manuals.

Then I started writing technical documentation for small kitchen appliances and in this instance, I applied standardization and content reutilization, trying to be effective without being banal, trying to be specific applying content reutilization.

I remember reading the machinery directive and the EN ISO 12100 several times […] At night, rather than reading a novel, I would read the machinery directive (laughs).

To sum up, I can say that both passion and studying the norms have helped me in the development of my professional profile."

Gabriele: *"Mr Pratelli, how would you define your professional profile?"*

Mr Pratelli: *"Well you know, as I said, being "alone" from 2004 to 2014/2015 and being fond of drawing and design, I like doing everything. […] So how can I define myself? I am an illustrator, a technical writer, I am a taxonomy, standardization and terminology enthusiast, because neither of these things mutually exclude each other. When we talk about technical communication, we cannot avoid taking into consideration drawing and design, terminology and writing. It is impossible. Moreover, if we had no knowledge of technical norms, we could not identify the risks and write safety warnings."*

3.5.4 Interview with Ms Vilma Zamboli – WRITEC

-The following is an excerpt from the interview-

Gabriele: *"Ms Zamboli, what did you study throughout your career and how did you approach Technical Communication?"*

Ms Zamboli: *"I have a Secondary School Diploma in Electronics and Automation and at that time my course was an experimental one. I would like to underline this aspect because it allowed me to experiment in many other areas. We could choose between three different curricula: visual communication, foreign languages and electronics and automation. There were common subjects for the three curricula in the morning and in the afternoon we would study curriculum-specific subjects like photography, foreign languages like Russian and radio engineering. […] Then in the evenings I used to attend other types of courses like Illustration courses, English, French, Spanish and Russian lessons. I really love visual arts and art in general. […] In the 1980s, my professional profile was highly-demanded in Milan, therefore I started working soon after I got my diploma. I recently realized that I was one of the first if not the only woman who was working in the mechatronics industry at that time. In the meantime, I also wrote technical documentation in English, because I was one of the few people who could write in English at that time in my*

company. Back then, there were no rules nor standards but everything changed for me when I started working for a different company […] which adopted the Microsoft standard. Then in 1999 I decided to start my own business, Writec, and subsequently I became a member of the USA Society for Technical Communication, which helped me develop my knowledge in technical communication. I started reading magazines and buying technical communication books that I still keep with me nowadays. I was also both vice-president and president at the Society for Technical Communication. I found out about the Technical Writer profession thanks to a friend of mine who worked for Microsoft translating and localising manuals."

Gabriele: *"Ms Zamboli, how would you define your professional profile?"*

Ms Zamboli: *"I define myself as a digital content strategist and smart information designer. I am also responsible for R&D in my company. However, smart information design […] comprises the new concept of digital information and smart information that goes beyond the classic channel of written information; it may even include augmented reality and virtual reality."*

3.5.5 Interview with Dr Michele Pighi – WRITEC

-The following is an excerpt from the interview-

Gabriele: *"Michele, what did you study throughout your career and how did you approach Technical Communication?"*

Michele: *"I have a Secondary School Diploma in electronics and telecommunication. I also attended university and got a bachelor's degree in languages and international business. Among the various things that I made on my own, I studied web languages, which was a turning point for me because I started perceiving information in a structured way; I also studied graphics. Then I started working for Writec. Writec actually contacted me because they needed a writer and the combination of technical and linguistic knowledge that I had, led me to work for them; they needed someone who could publish contents in different formats, including web formats. In a sense, I never looked for technical communication, but it was rather the other way around."*

Gabriele: *"Michele, how would you define your professional profile?"*

Michele: *"Well, I recently updated my email signature and I am currently defining myself as "CCMS consultant and content strategist". I am doing progressively less technical writing, actually I haven't done any for a few months, but rather I am almost uniquely helping our customers implement CCMS solutions in their businesses, so that they can work with new processes and new instruments. I was a technical writer once and I can perfectly understand their problems and needs.*

As far as my experience goes, I feel like my contribution is to not only provide an instrument but also to set up processes that will help technical communicators in their job."

CHAPTER 4 – TECHNICAL COMMUNICATION IN THE REST OF THE WORLD

4.1 Academic studies and education

As seen in sub-chapter 2.3 "Many paths to the same profession", there are several ways, according to the https://www.technical-communication.org/ website to become a technical writer in Europe. There are both undergraduate and Master's Degree programs offered by universities all over Europe, except from Italy and a few others, as well as a specific training by tekom Europe which also includes an internship.

As a further step, tekom Europe also launched a project named "TecCOMFrame"[117] through which a university map has been developed to help users and visitors of the website get direct access and find relevant information about university degrees and study programs all over Europe.

I will now include a screenshot of the aforementioned map in order to give a better understanding of the website itself and how it works.
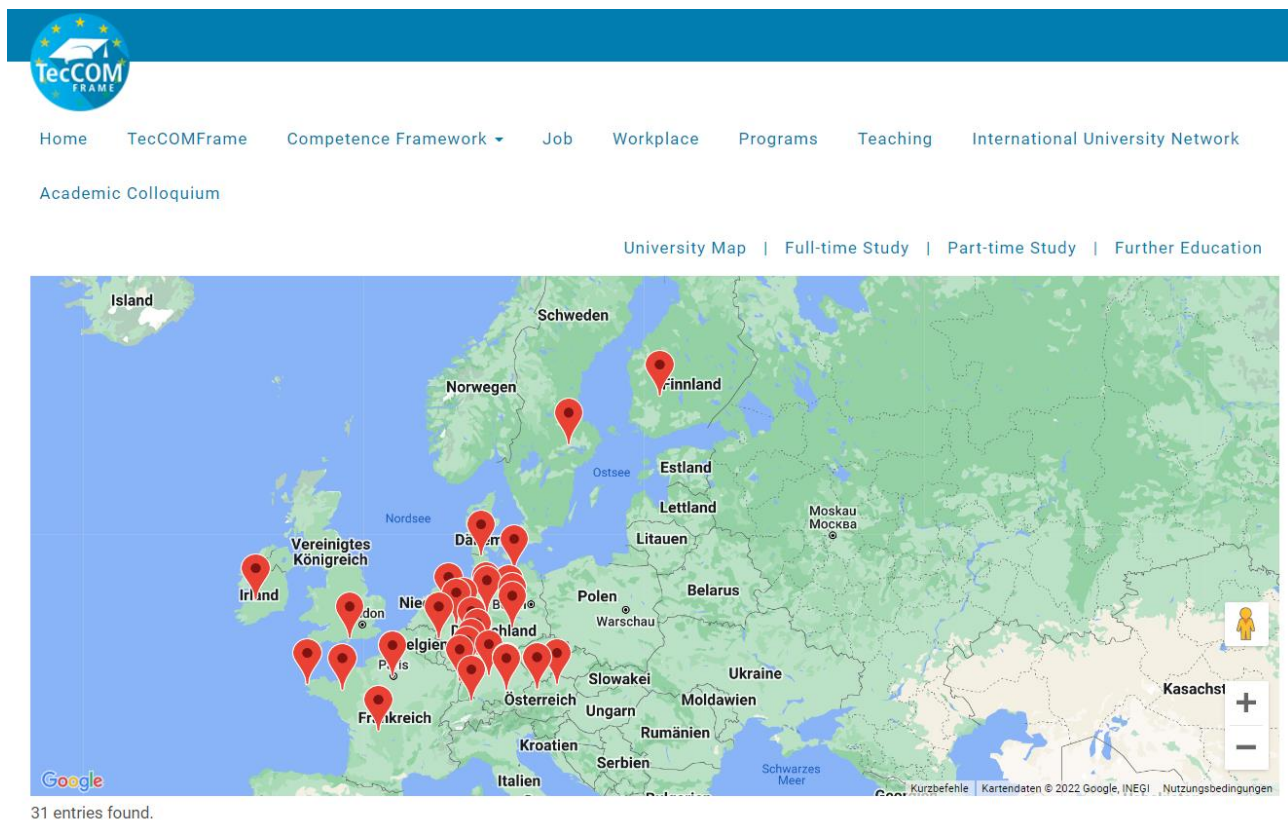
The presented map shows the whole of Europe and the places where courses or studies in Technical Communication are held. The map currently shows a grand total of 31 entries, spread across Austria, Finland, France, Germany, Great Britain, Ireland, Sweden, Switzerland and The Netherlands. The vast majority of courses, as expected, can be found in either Germany, Austria or

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[117] https://www.technical-communication.org/technical-writing/academia/university-programs

Switzerland. However, the rest of the European countries also have a fair share of courses and/or study programmes, with different specifications and levels. In the following sub-chapters I will analyse Bachelor's Degrees and Master's Degrees that can be found on the https://www.teccom-frame.eu website.

4.1.1 Bachelor's degree programs

Starting from Bachelor's degree programs, and filtering through the website with the "filter" option, the outcome is a grand total of 6 courses divided between Germany, Switzerland, France and Austria. However, it is clear that there may be even more than just 6 bachelor's degrees in Technical Communication across Europe, but these 6 were mapped by tekom Europe and listed in the website.

4.1.1.1 Bachelor's Degree programs in Germany

As far as Germany is concerned, the https://www.teccom-frame.eu website suggests there are three Bachelor's degree programmes. The first one is a Bachelor of Science programme and is held by the the "TH Aschaffenburg University of applied sciences" in Aschaffenburg. The degree name is "Multimediale Kommunikation und Dokumentation" (Technical Documentation and Communication). As the webpage of the course suggests[118], the course is taught entirely in German and consists of 210 ECTS (European Credit Transfer and Accumulation)[119]. Furthermore, the course consists of 7 semesters, six of which are entirely dedicated to studies and one of which is entirely dedicated to practice. As stated on the webpage, the course has 5 main aims:

1. Media management and communication
2. IT and multimedia communication
3. Technology
4. Business administration
5. Linguistic and communicative competences

The second Bachelor's degree in Germany is a Bachelor of Arts and is held by the "H2 Hochschule; Magdebur-Stendal" university in Magdeburg. The degree name is "International Technical Communication and Translation" and in spite of having an English translation on their

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[118] https://www.th-ab.de/studium/vor-dem-studium/studiengaenge-von-a-z/multimediale-kommunikation-und-dokumentation

[119] The **European Credit Transfer and Accumulation System** (ECTS) is used across Europe for credit transfer between institutions of higher education. This helps European higher educational institutions to translate academic credit marks between institutions. https://www.uea.ac.uk/study/study-abroad-and-exchange/erasmus-programme/ects#:~:text=The%20European%20Credit%20Transfer%20and,academic%20credit%20marks%20between%20institutions.

webpage[120], the course is entirely taught in German. The course consists of 6 semesters as opposed to the previous one which consisted of 7 and it has 3 main aims:

1. It prepares students for working in the field of technical translation in industry and commerce
2. It prepares students for working for national and international public bodies and organizations
3. It prepares students for working in the fields of terminology, technical documentation, business communication and technical information.

The third and last Bachelor's degree in Germany is yet again a Bachelor of Arts and is held by the "Hochschule Flensburg University of Applied Sciences" in Flensburg[121]. The degree name is "International Technical Communication" and it is taught both in German and English. Its duration is 7 semesters and it also received an accreditation by AQAS[122]. The two majors of this course are[123]:

- Technical Writing
- Technical Translation

4.1.1.2 Bachelor's degree programs in Switzerland

As far as Switzerland is concerned, the https://www.teccom-frame.eu website suggests there is one Bachelor's degree. It is a Bachelor of Art degree[124] and it is held by the "ZHAW School of Applied Linguistics" in Zurich. The degree name is "BA in Applied Languages". One interesting thing about this course is the fact that it is taught in three languages and depending on the student's mother tongue, there is a different set of possible combinations which is perfectly illustrated by a scheme on the webpage[125]:

First language	First foreign language	Second foreign language
German	English, French, Italian, Spanish	English, French, Italian, Spanish
French	German	English
Italian	German	English

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[120] https://www.h2.de/no_cache/en/studies/bachelors-programmes/internationale-fachkommunikation.html
[121] https://hs-flensburg.de/en/studieninteressierte/angebot/bachelor/IFK
[122] Agency for Quality Assurance; https://www.aqas.eu/
[123] https://hs-flensburg.de/en/studieninteressierte/angebot/bachelor/IFK
[124] https://www.zhaw.ch/en/linguistics/study/ba-in-applied-languages/#c90607
[125] https://www.zhaw.ch/en/linguistics/study/ba-in-applied-languages/#c90607

Apart from these combinations, the ZHAW School of Applied Linguistics of Zurich also lets students choose other foreign languages like[126]:

- Arabic
- Chinese
- Russian

The course consists of 180 ECTS and can be attended either as a full-time student or a part-time student; depending on that, the course may last respectively 6 or 10 semesters.

Furthermore, as stated on the webpage of the course, it has 3 main aims[127]:

1. Multilingual Communication
2. Multimodal Communication or Technical Communication
3. Information Design

4.1.1.3 Bachelor's degree programs in France

As far as France is concerned, the https://www.teccom-frame.eu website suggests there is one Bachelor's degree. It is held by the "Université de Limoges"[128] in Limoges and it is taught entirely in French. The course name is "Design d'information et Rédaction technique" (Information design and technical writing) and it lasts 1 year.[129]

The course aims at providing the students with several different competences and skills to be acquired throughout the academic year[130]:

- Information design
- Terminology management
- IT languages
- Technical writing
- Norms and standards

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[126] https://www.zhaw.ch/en/linguistics/study/ba-in-applied-languages/#c90607

[127] https://www.zhaw.ch/en/linguistics/study/ba-in-applied-languages/#c90613

[128] https://www.flsh.unilim.fr/licence-professionelle/design-information-et-redaction-technique/

[129] https://www.flsh.unilim.fr/wp-content/uploads/sites/9/2022/01/LICENCE-PROF-DESIGN-INFORMATION-REDACTION-TECHNIQUE.pdf

[130] https://www.flsh.unilim.fr/licence-professionelle/design-information-et-redaction-technique/

4.1.1.4 Bachelor's degrees in Austria

As far as Austria is concerned, the https://www.teccom-frame.eu website suggests there is one Bachelor's degree. It is a Bachelor of Engineering degree and it is held by the "FH University of Applied Sciences Upper Austria" in Wels. The course name is "Product design and technical communication" and as the webpage of the course suggests[131] it consists of 180 ECTS spread throughout 6 semesters. It is taught entirely in German and its main focuses are[132]:

- **Engineering:**

  Information technology, mechanical engineering, mathematics, physics, materials processing

- **Design and ergonomics:**

  Design and ergonomics fundamentals, user interface design, software design

- **Technical communication:**

  Technical documentation and technical writing, German and English for professionals, use of software tools

- **Product management:**

  Project management, product engineering, quality management, economics and law

- **Interdisciplinary projects:**

  Projects in industrial practice, participation in research & development activities

4.1.2 Master's degree programs

As far as Master's degree programs are concerned, filtering through the website with the "filter" option, the outcome is a grand total of 8 courses divided between Germany, The Netherlands and France. However, it is clear that there may be even more than just 8 Master's degrees in Technical Communication across Europe, but these 8 were mapped by tekom Europe and listed in the website.

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[131] https://www.fh-ooe.at/en/wels-campus/studiengaenge/bachelor/product-design-and-technical-communication/
[132] https://www.fh-ooe.at/en/wels-campus/studiengaenge/bachelor/product-design-and-technical-communication/study/focus/

4.1.2.1 Master's degree programs in Germany

Surprisingly, even though as far as Bachelor's degree programs were concerned Germany was the "leader", with Master's degrees the situation is a little different. The tekom association managed to map just 3 courses, whereas France has 4. Let us see what these 3 courses entail.

The first Master's degree is a Master of Arts[133] and is held by the "THM Technische Hochschule Mittelhessen" University in Gießen (Giessen). The degree name is "Technical Communication and Multimedia documentation" and it is taught in German. The duration of the course is two years and its main focuses are:

- IT and media
- Technical communication
- Norms and standards
- Desktop publishing and editing systems
- Project management

The second Master's degree is a Master of Arts[134] held by the "Universität Hildesheim" (Hildelsheim University) in Hildelsheim. The degree name is "Internationale Fachkommunikation - Sprachen und Technik" (International Specialized Communication – Languages and Technology). The course is taught entirely in English and lasts 4 semesters. Its main majors are[135]:

1. Science
   - Specialised communication science
   - Comprehensibility research
2. Practice
   - Technical Translation English-German I-III with final project
   - Technical Editing, I-III with final project
   - Technical English
   - Intelligibility Optimisation
3. Technology
   - Automation Technology: Semiconductor Technology, Hydraulics & Pneumatics, Digital Technology, Mechatronics, Measurement and Control Technology

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[133] https://www.thm.de/site/en/studies/our-degree-courses/technische-redaktion-und-multimediale-dokumentation-master-ma-mni-giessen-2.html

[134] https://www.teccom-frame.eu/programs/university/universitaet-hildesheim/

[135] https://www.thm.de/site/en/studies/our-degree-courses/technische-redaktion-und-multimediale-dokumentation-master-ma-mni-giessen-2.html

- Production & Information Technology: Production Engineering, Process Engineering and Environmental Protection, Information Technology, Information Electronics

4. Free student choices (two modules can be chosen)

- Methods & Tools of Language Technology: Text corpora, terminology management, machine language processing, electronic dictionaries, machine translation

- Energy Technology and Sustainability: Energy Technology, Sustainable Innovations, Technical Colloquium

- Second foreign language French or Spanish: Technical language, technical communication, technical translation for the second foreign language

- Special areas of specialised communication: specialised communication in the mass media, barrier-free internet use, communication & orientation of people with sensory disabilities

5. Conclusion of the course

- Internship (> 8 weeks)
- Master's colloquium
- Master's thesis

The third and last Master's degree listed on the https://www.teccom-frame.eu website has been available until 2019 but unfortunately it is no longer active. It was held by the University of Rostock[136] and its full name was "Technische Kommunikation" (Technical Communication).

4.1.2.2 Master's degree programs in France

As previously mentioned, according to the https://www.teccom-frame.eu website, there are 4 Master's degree programs in France. Let us now see them in full detail.

The first one is a Master of Arts degree and it is held by the "Université de Paris Cité" (Paris City University) in Paris, under the name "Multilingual Technical Communication". The full course consists of 52 weeks, divided in two modules[137]:

1. 21 weeks of study and training

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[136] https://www.uni-rostock.de/weiterbildung/masterstudiengaenge/technische-kommunikation/studienkonzept/

[137] https://odf.u-paris.fr/fr/offre-de-formation/master-XB/arts-lettres-langues-ALL/langues-etrangeres-appliquees-K2VO09BK/master-langues-etrangeres-appliquees-parcours-communication-technique-multilingue-JRRXS6YV.html

2. 31 weeks of internship

The main aim of this course is to prepare students to become:

- technical communicator (online help, technical manuals) - technical communicator, information developer
- instructional designer (e-learning modules) - instructional designer
- editorial webmaster - editor, content strategist
- web editor - copywriter
- documentation project manager - documentation manager
- user experience designer - UX designer, information architect
- documentation engineer - content engineer

The second Master's degree is a Master of Arts and it is offered by the Faculty of Languages at the University of Strasbourg[138]. Its full name is "Master's in Technical Communication and Localization (TCLoc)" and its duration can vary from 12 to 24 months depending on the personal needs and professional commitments of each student. Its main focuses are[139]:

- Web Tools and Languages
- Technical Communication
- Localization
- Visual Communication
- Professional Writing
- Project management
- Advanced Localization
- New Techniques and Technologies

The third Master's degree is a Master of Arts and it is offered by the "Département LEA Université Rennes 2" in Rennes. Its full name is "Translating and Interpreting" and it offers two main paths[140]:

1. Translation-localization and project management (pathway 1)
2. Technical communication and content strategy (pathway 2)

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[138] https://mastertcloc.unistra.fr/
[139] https://mastertcloc.unistra.fr/program/curriculum/
[140] https://international.univ-rennes2.fr/index.php/studying/translating-and-interpreting-masters-degree

Both paths are taught entirely in French and share the same common objectives, with some slight differences in their specific majors. In general terms, these are the common objectives of the two possible choices[141]:

- Technical and specialized translation
- Localization (software / web / video games)
- Computers and tools (DTP, CAT, programming)
- Project Management
- Oral and written professional communication
- Post-editing

The fourth and last master's degree programme is offered by the "Université de Bretagne Occidentale (UBO)" (University of West Brittany), and its full name is "Master mention Traduction et Interprétation: Parcours Rédacteur/Traducteur" (Master's degree in Translation and Interpreting: Translator/Editor Pathway"[142]. It is taught entirely in French and its main majors are:

- Sociolinguistics
- Translation
- Interpreting
- Localization
- IT and Technology
- Technical Writing
- Technical Translation

4.1.2.3 Master's degree programs in The Netherlands

Last but not least, let us now analyse the situation in The Netherlands. There is only one listed Master's degree on the https://www.teccom-frame.eu website. Its full name is "Communication Studies with Specialization in Technical Communication" and it is offered by the University of Twente[143]. It lasts 1 year and it is taught entirely in English. It aims at offering

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[141] https://international.univ-rennes2.fr/index.php/studying/translating-and-interpreting-masters-degree
[142] https://formations.univ-brest.fr/fr/index/arts-lettres-langues-ALL/master-XB/master-mention-traduction-et-interpretation-IOMOTB9T/parcours-redacteur-traducteur-IOMP2P9W.html?search-keywords=traducteur
[143] https://www.utwente.nl/en/education/master/programmes/communication-science/

students the opportunity to become "communication engineers" and to focus on design and communication[144].

4.2 The rest of the world

In order to further expand the range of possible choices, since tekom also has branches outside of Europe, as mentioned in the introduction to this Master's Degree dissertation, it would be important to also talk about the so called "International university network in technical communication" developed by tekom Europe.

This network is especially necessary because millions of people work in the Technical Communication field worldwide but unfortunately the profession is still not well-known[145].

The network follows from the "TecCOMFrame project" that was previously analysed in sub-chapter 4.1 "Academic studies and formation" and provides its users with a series of benefits that are perfectly explained in the https://www.technical-communication.org/ website[146]:

- **Benefits for universities:** Universities involved in this network will be able to create opportunities for students and will attract more visibility and higher participation in technical communication modules and programmes.
- **Benefits for students:** This network will help universities to develop and offer modules and programmes in technical communication. This is a growing field, with work opportunities for students with interdisciplinary skills, especially skills in languages, media, communication, and technology.
- **Benefits for industry:** This network will help to meet the recruitment needs of companies operating in the field of technical communication, by training graduates to meet the labour market shortage, and by helping young people seeking job opportunities in technological and innovative contexts.

4.3 Professional profiles of Technical Communication in Europe

Now that a thorough analysis on the European situation has been carried out, it is important to also analyse the professional profiles of Technical Communicators across Europe, just like it was

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[144] https://www.utwente.nl/en/education/master/programmes/communication-science/#why-choose-communication-science

[145] https://www.technical-communication.org/technical-writing/international-university-network-in-technical-communication

[146] https://www.technical-communication.org/technical-writing/academia/university-programs

done for Italy in sub-chapter 3.5 "Interviews". In order to do so, I used data collected from the https://www.technical-communication.org/ website, where I found a dedicated section that has all the relevant information I need.

In recent years, tekom conducted a "*comprehensive, cross-European survey among technical communicators about the status of the profession and possible channels into technical writing[147]*". The results of the survey where then summarized and fictional characters representative of every nation were created. These so called "personas" embody the general qualities, knowledge and competences of Technical Writers in the analysed European countries[148].

4.3.1. Persona of Technical Communication in Germany

Here is the summarized result of the survey for Germany[149]:

"MICHAEL BECK, 36, GERMANY

He studied English for a teaching degree at university. He heard about technical writing in his translation classes and visited a separate training course in Technical Communication. He was not eager to find a job in teaching and technical communication appeared to be the most lucrative possibility, with the most opportunities for career advancement. He has now been working as a technical writer at an industrial company in the field of terminology for eight years.

"When I finished my teacher training, I was certain that I did not want to become a teacher anymore. So, I looked for alternatives and found a one-year trainee program at a technical communication company. After this year, I stayed in the field of technical communication. Combining linguistics, pedagogy, IT and languages is what makes the field so interesting for me.""

4.3.2 Persona of Technical Communication in Ireland

Here is the summarized result of the survey for Ireland[150]:

"REBECCA WALSH, 44, IRELAND

She studied translation at university. She used to work as a translator, but while translating documents of Technical Writers she got interested in the field and wanted to become a technical

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[147] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/paths-to-the-profession

[148] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/paths-to-the-profession

[149] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/paths-to-the-profession

[150] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/paths-to-the-profession

writer herself. She asked her team leader weather besides translating and correcting source texts, she might also improve those by restructuring, adding missing information, etc. Eventually, she switched to technical writing at her company. She found that jobs in technical communication had better hiring options. She had no additional training in technical communication. She has now been working in the software industry in the field of technical communication for about 18 years.

"I get to do things in the field of Technical Communication I really enjoy and I get a very good salary! I 've always been very detail-oriented when it comes to the written word, I've always liked copy editing, I've always been technically inclined, and in this job these skills are all an asset. I get paid and appreciated for obsessing over a comma or troubleshooting some obscure part of the application. What could be better? The skills match what I wanted to do and what I was looking for in a new and better paying career.""

4.3.3 Persona of Technical Communication in Finland

Here is the summarized result of the survey for Finland[151]:

"KIMI JANSSEN, 25, FINLAND

His parents are technical writers. He is interested in structuring and classifying texts. He searched for a course of studies in this profession at university. After he got his master degree one year ago, he started working in the field of technical communication at a TC service provider.

"It's a really diverse and responsible profession. First, you are a kind of detective, investigating how the device works and what the user can do with it. Then you must be a lawyer, knowing all the legal regulations to be observed. Next you must translate your knowledge in a way the user understands. Then you manage translation and distribution of the content... With my help, the life of software users and our customers gets easier.""

4.3.4 Persona of Technical Communication in Switzerland

Here is the summarized result of the survey for Switzerland[152]:

"ANTONIO NICOLETTI, 52, SWITZERLAND

He was trained as a car mechanic. Afterwards he studied engineering. When searching for a topic for his thesis, he improved the internal procedure of Technical Writing for his company. He

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[151] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/paths-to-the-profession
[152] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/paths-to-the-profession

has had no actual training in the field of technical communication, though he took a few online seminars. He has now been working for a car manufacturer in the field of technical communication for 13 years.

"I could never decide whether I wanted to work in a technical field or with texts/words, because I like to write and I like to explain. After my thesis to improve the internal procedure of technical communication, I was offered a job as a Technical Writer. Technical communication offers me the best of both worlds.""

4.3.5 Persona of Technical Communication in Romania

Here is the summarized result of the survey for Romania[153]:

"LIVIA BADESCU, 29, ROMANIA

She studied Media and Communication but dropped out of college. She then had an internship at an international software company, where a colleague told her she was very analytical, organized and a good communicator, so she would be a perfect fit for technical writing. Before that she had never heard about the field of TC, but started searching for a study program afterwards. She has had several months of professional training. She has now been working as a technical writer for an industrial company for about 5 years, dealing with multimedia documentation.

"When I had a summer job as an intern at a tech company, I learned about the field of technical communication. I had the opportunity to develop video training and documentation content in multiple languages. After graduating, I followed this career path instead of media and communication which I had been studying until then. Technical communication offers a combination of technical content, communication and writing, with good salary and work-life-balance: some tasks can easily be done from home and the job is compatible with family life."

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[153] https://www.technical-communication.org/technical-writing/outline-of-technical-communication/paths-to-the-profession

CHAPTER 5 – WHAT DOES THE FUTURE HOLD FOR TECHNICAL COMMUNICATION?

5.1 An outlook on the future

As a final step of this work and after the provided in-depth analysis, I feel like it is important to talk about what the future may hold for Technical Communication, what has to be done and what can be improved.

First of all, as far as Italy is concerned, I feel like the need for both Bachelor's Degree Programs and Master's Degree Programs is fundamental. As we have seen throughout chapter 4, many European countries are now leading as far as academic studies in the Technical Communication field are concerned. Therefore, I truly believe that an integration between the current education provided by COM&TEC and an academic path could be an excellent way to make the professional profile of the Technical Communicator more well-known.

Secondly, another critical challenge that must be faced is the mild reticence of businesses and companies to adopt smarter and more innovative solutions, just like CMS, CCMS, better UX Design and others. However, in spite of that, while assisting the 2022 edition of the COMtecnica Conference in Venice, I was able to see that many business owners are starting to switch to smarter solutions since a lot of new software is being created, giving everyone the possibility to find "the right tool for the right job"

Finally, since any field of our lives is now being invested with Augmented Reality, VR, 2D and 3D solutions, I feel like this might also be a good challenge for the future. As stated in a 2012 press-release by COM&TEC[154], the implementation of AR could have a great impact and provide users with many benefits such as[155]:

"1. **Customer service and maintenance**

Augmented Reality is an ideal technology for customer service and maintenance, as the required information can be obtained immediately and directly on site. Let's imagine that a technician is called to repair a complex machine. He points his iPad at the machine, the data is immediately retrieved and the problem is quickly solved. The software then creates a visual layer that identifies the problem and subsequently illustrates the repair process step by step.

2. Production and assembly

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[154] https://www.comtec-italia.org/event-161/
[155] https://www.comtec-italia.org/event-161/

Information and instructions are provided to users exactly where and when required, sometimes these can even be projected onto the device.

3. Quality Management

It is possible to locate problems with the help of a tablet and to guide the end user on how to solve the problem.

4. Prototyping and design

In this field, Augmented Reality has already been used for some time to visualise changes in design and components.

5. Plants planning and reconstruction

Once again, Augmented Reality has already been used for quite some time to visualise the planning process. It is not only about planning, but also about construction; for instance, AR could enable users to check from the start of construction whether a piping system is compatible with the existing one."

For these reasons, the COM&TEC article that I referred to[156] also highlighted some challenges for the future: "Augmented Reality poses a new challenge to technical writers: in the future, they will have to write for a medium that is much more interactive than anything that they have used so far. This undoubtedly changes the design and creation of technical documents.

Technical writers must have a clear idea of the visual and auditory impression they want to achieve. Augmented Reality cannot be compared to the standard activity of reading documents, be it on paper or on a screen. On the contrary, it is a comprehensive sensory experience that can be very interesting for beginners: partially immersed in artificial reality and, at the same time, partially connected to the real environment.

The production of technical documentation for Augmented Reality will also require more coordination with software developers.

Augmented Reality allows for perfect adaptation to the user's situation. Thus, technical writers must consider not only the user's location, time or problem with the product, but also the ways in which the user can interact with Augmented Reality."

5.2 What do experts think are the challenges for the future of Technical Communication?

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[156] https://www.comtec-italia.org/event-161/

As a final step, since I interviewed many experts during my work, I decided to also ask them what they think might be the future perspectives and challenges for Technical Communication.

In the following sub-paragraphs, I will share what I found out.

5.2.1 Challenges for the future according to Mr. Carlo Gardini – COM&TEC

During my interview with Mr Carlo Gardini, he stated the following:

-The following is an excerpt from the interview-

Gabriele: *"So Mr. Gardini, one last question, what do you think are the challenges for the future of Technical Communication?"*

Mr. Gardini: *"For the future I feel like the formal recognition of this professional profile would be a great step. Very soon we will see the first certified technical writers, since exams are due to take place soon. We at COM&TEC are very satisfied both for the association itself and for the technical communicators who are about to get their certificates. We must now aim for the creation of university degrees in Technical Communication in order to achieve a better formal recognition of the professional profile. The skills and knowledge are many and varied: […] management competences, knowledge ranging from project management to ITS and STE, from norms and standards to translation and CAT tools, social skills and business processes. […] Companies rely on communication and they oftentimes do not know it, or they ignore it. But actually, communication is a continuum in any company. […] The common mistake that should be avoided is to consider technical communication as the mere writing of manuals and instructions, but that's not it! There is much more, it is much more complex: technical documentation has to be designed, created and updated continuously; it is a project that starts with an analysis […] it must have a budget, qualified resources and a time frame."*

5.2.2 Challenges for the future according to Mr. Gianni Rimorini – NETCOM

During my interview with Mr Gianni Rimorini, he stated the following:

-The following is an excerpt from the interview-

Gabriele: *"So Mr. Rimorini, one last question, what do you think are the challenges for the future of Technical Communication?"*

Mr. Rimorini: *"Well, when I personally make presentations during the CQCT course, I always state that it is important that companies understand that Technical Communication is an added value for the company itself. It is important to have a shift in the paradigm of technical*

communication, helping companies understand that it is a profit centre rather than a cost centre. If this "mutation" in thought happens, technical communication can be perceived as a resource rather than a cost. [...] This is already being made through the implementation of the UNI norm as well as the CQCT course which certifies the education of the technical communicator."

5.2.3 Challenges for the future according to Mr. Alessandro Pratelli - AP Publishing

During my interview with Mr Alessandro Pratelli, he stated the following:

-The following is an excerpt from the interview-

Gabriele: *"So Mr. Pratelli, one last question, what do you think are the challenges for the future of Technical Communication?"*

Mr. Pratelli: *"Well, that is an interesting question for sure. In my opinion, in this field just like in any other field, the market determines the need for a product or service, I truly believe so. But how can we influence the market so that there is a need for something different? The market is made up of manufacturers on the one hand and users on the other hand. [...] Therefore, you need the right type of people, people who are committed to providing high-quality services and high-quality products to their end users. You need honest people, whose aim is not only to make a profit, but also to provide their end-users with high-quality services as well as after-sale services.*

However, the main challenge in the field of Technical Communication is to provide the end user with correct and complete information. We could replace the expression "to provide the users with the information" with the expression "to facilitate the research of the information for the end user". Therefore, manufacturers will have to provide the information and the end-users must be able to find that piece of information. And it will all be done via the web. Paper version (of information for use, translator's note) is now something "extra", that can be required afterwards. I still love paper though [...] but we need to fully embrace the web, there are no other ways at the moment. We must work on terminology for a better findability of the information."

5.2.4 Challenges for the future according to Ms Vilma Zamboli - Writec

During my interview with Ms Vilma Zamboli, she stated the following:

-The following is an excerpt from the interview-

Gabriele: *"So Ms Zamboli, one last question, what do you think are the challenges for the future of Technical Communication?"*

Ms Zamboli: *"It will be important to have professional profiles which are not only technical writers but also technical communicators who are able to think in a multi-channel way. Nowadays information is granular and faceted, therefore technical communicators will be required to have totally new skills like taxonomy or the ability to work using key words, which I feel do not belong to current technical communicators."*

5.2.5 Challenges for the future according to Dr Michele Pighi - Writec

During my interview with Dr Michele Pighi, he stated the following:

-The following is an excerpt from the interview-

Gabriele: *"So Michele, one last question, what do you think are the challenges for the future of Technical Communication?"*

Michele: *"I see some limits in the way businesses publish their contents, in the sense that they use old formats […] they use inadequate instruments and knowledge for their aims. There is no standardization in the use of instruments and technologies. Moreover, I feel like it would be important to let people understand the true value of Technical Communication, to let them understand why it would be beneficial to make investments in this field."*

Gabriele: *"So Michele, I recently read a position paper by tekom, introducing their iiRDS standard, do you think this could be the solution to the lack of standardization that you mentioned?*

Michele: *"Yeah, it could be a solution, even though it is a bit early as of today. We use a system that adopts the iiRDS standard in our company […] but companies also need to invest in an eco-system that revolves around the standard itself, and in a software that works well for the end user."*

CONCLUSIONS

As for the conclusion of this work, I would like to rely on the words by Dr Tiziana Sicilia, Chairperson of COM&TEC and tekom Europe, who followed me in the process of gathering information and writing my thesis, gave me very interesting insights on the field, provided me with a very broad overview from the birth of Technical Communication all the way to the present and future and shared important inputs for this work and for my future:

"The development of increasingly advanced, automated and performing products implies an evolution of the profession of the technical communicator who must keep up with the rapidly changing times. This requires specific competence, technical skills and professionalism by continuous certified training.

Today more than ever, this profession is not improvised and requires a lot of responsibility in the management of information and contents to be communicated and delivered in different formats. Communication must always be clear, safe, unambiguous, accessible and usable in any context and for any target audience.

The innovation of new technologies, solutions and tools to support technical communication projects and a reference regulatory system make this profession very fascinating also and above all for the new generations who can pursue this career.

The opportunities offered are plentiful and organizations can offer great employment opportunities. All that remains is to deepen the operational areas of the entire process of technical communication.

The Associations for Technical Communication have the task of continuing to support the professionals involved and represent a rapidly expanding sector, so important for organizations and markets."

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