Review

"Stumbling blocks" in the translation of technical documentation

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Abstract: The objective of this study is to clarify the notion of "technical documentation" and explore the challenges and strategies involved in translating this type of text. Technical documentation is crucial in helping customers understand how to use the product effectively that is why it should be well-structured, allowing users to find the information they need quickly and easily. Examples of technical writing include technical manuals, operating instructions, scientific books, monographs, academic papers and articles, and patent translations. However, several obstacles can impede the translation process, potentially resulting in inaccuracies or misunderstandings. Common translation difficulties include untranslatable words, multiple-word meanings, differences in grammatical and syntactic systems, technical and specialized terminology, and "false friends." The process of translation of such texts is intricate, involving the transfer of information from one language to another while considering cultural, linguistic, and contextual factors. While translating technical texts, the translator may encounter various obstacles, such as linguistic challenges, source text issues, expertise gaps, and realia. Improving the effectiveness of translating technical documentation involves a combination of best translation practices. Effective communication and collaborative efforts are crucial elements for project success. It is also important for professional translators to be vigilant and use the right resources to avoid common pitfalls and deliver high-quality. By combining these strategies, you can enhance the efficiency and accuracy of translating technical documentation, ensuring that the information is effectively communicated to a global audience.

Keywords: translation; stumbling blocks; technical documentation; special type of a text; strategies for addressing common translation challenges

1. Methodology for investigating stumbling blocks in the translation of technical documentation

Throughout human history, individuals from diverse backgrounds have encountered one another in various spheres such as trade, military affairs, economics, politics, culture, and science. As a result of this communication, languages have been influenced by each other, leading to changes in some languages and the emergence of new ones. Bilingual and multilingual people have played a crucial role in driving these processes forward. Translation, which is a vital form of intercultural and interlingual communication, relies on bilingualism as its underlying foundation.

Research on the challenges and stumbling blocks in the translation of technical documentation is typically carried out by a combination of experts in translation studies, linguistics, and technical communication. While specific studies or researchers may focus on this area, it's important to note that this is an interdisciplinary field, and contributions come from various experts. Translation has repeatedly been the subject of scholarly attention, with various definitions of the process. A significant

contribution to the development of the problem was made by L. Barkhudarov, V. Breus, V. Komisarov, V. Koptilov, Y. Retsker, A. Fedorov, and others, who studied the peculiarities and problems of the translation process in general and, in particular, the translation of scientific and technical literature.

The objective of this study is to clarify the notion of "technical documentation" and explore the challenges and strategies involved in translating this type of text. The investigation shall delve into the various aspects that differentiate technical documentation from other forms of written content, including its specialized terminology, complex syntax, and rigid structure. Moreover, the research shall explore the difficulties that arise during the translation process, such as ensuring accuracy, maintaining consistency, and adhering to industry-specific standards. By examining the various translation strategies and approaches that have been used previously, this study will provide recommendations for professionals engaged in technical documentation translation.

The methodology for investigating stumbling blocks in the translation of technical documentation often involves a systematic and interdisciplinary approach. Here's a general outline of the methodology that we used:

- Literature review: conducting a comprehensive literature review helps to understand existing research on translation challenges in technical documentation.
- Collaboration with translation practitioners: we have collaborated closely with professional translators and translation agencies to gain access to real-world translation projects, analyzed anonymized data from these projects to identify common stumbling blocks, assessed the effectiveness of existing solutions, and gathered qualitative data on their experiences, perceptions, and specific challenges encountered during the translation process.

2. Technical documentation as a special type of text

To comprehend the nuances of translating specialized texts, it is necessary to identify how they differ from other types of text. The literature presents several distinctive features of specialized texts at the lexical, syntactic, and textual levels, including terminology, specific word formation patterns, syntactic compression, nominalization, objectivity, and infinitive structures.

As a manufacturer, importer, or dealer of products, it is your responsibility to create or compile all the necessary technical documents, records, and materials that describe your product. This collection of information is known as technical documentation, and it must be available permanently following legal requirements.

It is important to note that technical documentation is not the same as marketing material. Instead, it is a comprehensive and structured set of information that serves a specific purpose. It provides a complete and readily available description of the technical aspects of the product.

Technical documentation is crucial in helping customers understand how to use the product effectively. Therefore, it is essential to write operating instructions in a language that is easy for the target audience to understand. Additionally, the technical documentation should be well-structured, allowing users to find the information they

need quickly and easily.

Clear and comprehensive technical documentation is essential for describing a product in detail. This is particularly important when it comes to usage information so that customers can learn how to use the product. To achieve this, operating instructions must be written in a language the target audience can easily understand.

If a product requires European conformity (CE) marking, technical documentation is mandatory by law. CE labeling is not an optional addition but rather a legal obligation. Products that fall under one or more European Union directives and/or regulations that require CE labeling must adhere to the protection goals outlined in those directives and regulations. The company must confirm during the final stage of product manufacture, through a declaration of conformity, that it has implemented the necessary measures for product safety and recorded them in the technical documentation. Standards that specify risk minimization solutions and set requirements for technical documentation can be helpful here.

2.1. The concept of translation

Before we begin to explore the stumbling blocks in translating technical documentation, let's define the concept of translation.

O. Kade provides a clear definition of translation:

"We understand (...) translation as the translation of a fixed and therefore permanently presented or repeatable text in the source language into a text in the target language that can be checked and repeatedly corrected at any time" [1].

It's important to note that the translator is not the only factor in the translation process. According to Reiss and Vermeer [2], other factors include the text producer, the text type, the consensus situation, and the socio-cultural context. Holz-Mänttäri [3] defines the translation process as a comprehensive concept of action based on the idea that the decisions made by the translator are not only based on the structures found in the source text but can also result from a discussion between the people involved in the act of communication.

The process of translation is intricate, involving the transfer of information from one language to another while considering cultural, linguistic, and contextual factors.

2.2. The challenges of technical translation

Technical translation pertains to the translation of technical documents related to science, engineering, industry, and technology. As such, technical translation falls under the umbrella of scientific translation, which encompasses all fields of science, including technical translation. It is also sometimes known as scientific-technical translation. The process of translation is intricate, involving the transfer of information from one language to another while considering cultural, linguistic, and contextual factors. Technical writing has unique characteristics that distinguish it from other forms of writing. It is intended for a specific audience who are experts in a particular scientific or technical field. Technical writing is formal in tone, uses clear and direct language, and includes a significant amount of specialized terminology that is specific to each discipline. Examples of technical writing include technical manuals, operating instructions, scientific books, monographs, academic papers and articles, and patent

translations. However, several obstacles can impede the translation process, potentially resulting in inaccuracies or misunderstandings. Common translation difficulties include untranslatable words, multiple-word meanings, differences in grammatical and syntactic systems, technical and specialized terminology, and "false friends."

It is widely acknowledged that translating specialized texts is a challenging task that requires exceptional language skills and specialized knowledge. An ideal translator should possess both linguistic competence and expert-level proficiency in the subject matter. Whenever in doubt, consulting with an expert can be beneficial. While translating technical texts, the translator may encounter various obstacles, such as [4]:

1) Linguistic challenges: The translator may not be familiar with the corresponding terms in the source and target languages, which can be overcome by referring to specialized dictionaries.

2) Source text issues: These may include suboptimal features of the source text, such as an unclear macrostructure, inconsistent terminology, illogical content sequence, or incomplete or contradictory information.

3) Expertise gaps: The translator may lack specialized knowledge in a particular area.

4) Realia: This refers to objects that are unique to a culture and do not have a counterpart in others. For instance, "road trains" in Australia.

3. Strategies for addressing common translation challenges

To ensure accuracy, professional translators need to conduct thorough research and contextual analysis when translating between languages. Here are some effective strategies to address common translation challenges:

Context: The traditional definition of 'context' from Catford [5] is adopted in the present work.

"By context, we mean 'context of situation', i.e., those elements of the extratextual situation which are related to the text as being linguistically relevant: hence contextual. By co-text, we mean items in the text that accompany the item under discussion: hence cotextual."

According to this definition, context refers to the extra-linguistic environment of a word. The physical context, which directly contributes to understanding foreign language-speaking situations, is also included in this definition.

Comprehension heavily relies on the audience's prior knowledge and contextual understanding. The title of a written work typically sets the primary context. Often, the reader's pre-existing knowledge proves more significant than the language itself. Mistakes can occur when one aspect is isolated or when the three elements are misinterpreted. When reading texts in a foreign language, comprehension necessitates a sophisticated cognitive process of deciphering linguistic components and references within the text. Carton [6] distinguishes between:

1) 'Intra-lingual cues' [7] are important for recognizing morphological and syntactic regularities in the text. The identification of the individual word classes plays a determining role, followed by gender, number, tense, and word formation

morphemes.

2) 'Inter-lingual cues' [6] are nothing other than similarities between the mother tongue and the target language or other foreign languages. These analogies in loan words or internationalisms are taken into account when developing meaning and integrated into the comprehension process. This type of word is easier to understand, but you also have to reckon with so-called "false friends" [8], which can lead to misinterpretations.

3) 'Extra-lingual cues' [7] are the knowledge or also the experiences of the reader/listener. Knowledge of the target language culture and the cultural context [9] is a determinant in understanding [10].

When it comes to translation, it's crucial to take into account the context of the sentence or text being translated. This means considering the surrounding words and overall meaning to determine the correct translation of potentially misleading words or phrases. In technical texts, consistency in terminology is especially important, as precision and repetition are key to conveying accurate information. This requires terms to be translated consistently, without any variation. Failing to do so can lead to confusion and misunderstandings for the reader and potentially even dangerous consequences in certain industries. Therefore, translators need to pay close attention to both the language being translated and the industry or context in which it will be used, maintain a consistent writing style, use standardized terminology and writing conventions in the source documentation to reduce ambiguity, keep sentences clear and concise, avoid complex sentence structures and use plain language whenever possible.

Dictionaries and language resources: When it comes to technical translation, one cannot underestimate the importance of using reliable terminological sources and specialized tools, such as glossaries, technical dictionaries, acronym dictionaries, and translation memories. These resources prove to be extremely helpful in the translation process and aid in ensuring accuracy. Moreover, it's essential to rely on reputable bilingual dictionaries and language resources that can identify incorrect cognates and provide comprehensive explanations and usage examples, making the language translation process much more effective.

Since July 2022, the new DIN 8579 [11] standard has been in place for technical writers, which can serve as a guideline for writing technical documentation suitable for translation. For optimal translation clarity, adhering to the provided guidelines is crucial. It is imperative to not only consider formatting and presentation but also grammar and wording. In certain instances, substantial adjustments may be necessary to meet the requisite criteria.

It is recommended to use parallel texts such as manuals, research articles, and other publications on the topic of translation. Parallel texts refer to similar texts that address the same or similar subject matter. They are highly recommended and even necessary since they provide similar or equivalent vocabulary and also utilize corresponding syntax and word combinations.

Clarify ambiguous terms: Create a glossary with definitions and context for technical terms to avoid misunderstandings.

Proofreading and editing: After the translation process is complete, the professional must allocate enough time to review the translated content thoroughly.

This will help ensure that the translation is accurate and flows naturally in the targeted language. It is also highly advisable to have a second translator perform a revision since it is said that "four eyes always see more than two". The second translator can provide fresh insights, identify any errors that may have been missed during the first review, and ensure that the translation is of the highest quality possible. By taking the time to review and revise the translation, professionals can ensure that the final product is of the highest quality and meets the expectations of their clients.

Technical editors are professionals who specialize in creating clear and understandable technical documentation. The technical editor scrutinizes the translated instructions at the lexical level to ensure they are accurately conveyed. One of the key responsibilities of a technical editor is to ensure that the translated documentation accurately conveys the meaning of the original text. This includes validating the use of proper terminology, avoiding "false friends," translating collocations and idiomatic expressions, fixed idioms, and other relevant aspects. Once the translation is complete, the professional should check the translated content to ensure that everything is correct and that the translation sounds natural in the target language. To do this, they need to have a thorough understanding of the various requirements of the product they are documenting, which they can obtain by working closely with the product developers. They are also well-versed in the tools and techniques used to translate technical documentation into different languages and versions.

Communication with customers: The process of information dissemination involves various steps, with translation being the final one. Once an editor has completed writing the last sentence of the source document, a considerable amount of time and resources have already been invested in the project. At this point, the product is usually on the verge of being launched, and every second counts. The translation process requires utmost attention to detail and accuracy, as it is crucial to ensure that the message conveyed in the source language is accurately translated into the target language. Any error or misinterpretation at this stage can lead to serious consequences, such as miscommunication, loss of credibility, and financial losses. In such cases, commonly encountered challenges are ambiguities on the translator's part, such as confusing abbreviations or misleading terminology. To avoid unnecessary postponements in the project's completion, professional question management is crucial to quickly resolve such open points.

If you are unsure about the meaning of a word or phrase, don't hesitate to ask clients or experts in the field for clarification. Ultimately, your customers must understand precisely what they can do with your product, how they can use it safely, effectively, and efficiently, as well as what they should avoid doing.

Continuous learning: To enhance the accuracy of translations, it's crucial to keep up with the latest language trends, linguistic developments, and new vocabulary in both source and target languages. This knowledge will help you to produce more precise and effective translations.

4. Conclusion

To sum up, we can say, that improving the effectiveness of translating technical

documentation involves a combination of best practices in translation, understanding the technical content, and leveraging technology. Effective communication and collaborative efforts are crucial elements for project success, especially when it comes to managing multilingual documentation. To ensure that the process runs smoothly, it is important to establish a reliable information bridge that connects the editing and translation teams. This helps to bundle and combine their expert knowledge, which in turn relieves the burden on the client's editorial teams. When both the editing and translation teams have a clear understanding of each other's working methods and processes, it makes everything easier and contributes to increasing efficiency. It is also important for professional translators to be vigilant and use the right resources to avoid common pitfalls and deliver high-quality, accurate translations that effectively convey the intended meaning from the source language to the target language. By combining these strategies, you can enhance the efficiency and accuracy of translating technical documentation, ensuring that the information is effectively communicated to a global audience.

We consider the investigation of the role of machine translation and artificial intelligence in translating technical documentation and the peculiarities of their perception to be a prospect for further research.

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