



THE KEY FEATURES OF TRANSLATION AND LOCALIZATION OF SCIENTIFIC AND TECHNICAL TEXTS

Ihnatiuk Olha / Ігнатюк Ольга

*Senior Lecturer, Department of English /
старший викладач кафедри англійської мови,*

Ionane Nadiia / Іонане Надія

*Senior Lecturer, Department of English /
старший викладач кафедри англійської мови,
Ivano-Frankivsk National Technical University of Oil and Gas
Івано-Франківський національний університет нафти і газу,
м. Івано-Франківськ, Україна*

Abstract. *This article explores the key aspects of translation and localization of scientific and technical texts. The increasing demand for high-quality technical translation arises from the rapid development of science and technology. Scientific and technical texts differ significantly from literary and general-purpose texts in terms of style, structure, and lexical content. The paper examines the essential principles of consistency, accuracy, and terminology management in technical translation, highlights challenges related to polysemy, neologisms, false friends, abbreviations, and stylistic differences, and emphasizes the role of context and subject-specific knowledge. Recommendations are provided to improve the quality of scientific and technical translation through deeper linguistic analysis, terminology standardization, and cultural awareness.*

Keywords: *technical translation, scientific texts, terminology, localization, accuracy, consistency, polysemy, neologisms, false friends, abbreviations, translation challenges, language for special purposes (LSP)*

Translation is a complex process of human mental activity.

Translation means adequate reproduction of the concept expressed by means of one language, by means of another language, reproduction of the considering the interaction of content and form.

The scientific and technical sphere is one of the vital spheres of human activity.

Due to the rapid development of technology and the spread of scientific and technical information, the importance of scientific and technical translation has grown.

The translation of scientific and technical literature differs from the translation of fiction, newspaper articles, documentary and business material, etc.

The concept of "scientific and technical literature" includes such varieties as the actual scientific and technical literature, namely, monographs, collections and articles on various problems of science and technology; educational scientific and technical literature (textbooks, reference books, etc.); popular science literature in various fields



of technology; technical and accompanying documentation; technical advertising, patents, etc. The translation of such literature causes certain difficulties.

Scientific and technical texts are characterized by a special style that distinguishes them from other types of texts. This feature creates additional problems.

The language of scientific and technical literature differs from the spoken language or the language of fiction by certain lexical, grammatical and stylistic features.

The main challenges of technical translations are consistency, accuracy, and the right tone. All these elements are essential when looking to respect industry standards and meet the public's expectations.

Consistency and Terminology.

Consistency in terminology is crucial in technical texts. Synonyms and idiomatic expressions, which are acceptable in literary texts, are usually inappropriate in scientific contexts. For example, a term like “software” should not be inconsistently translated as “program” or “application” unless the original text supports such variation. Creating and maintaining a terminology database or glossary is essential for ensuring uniformity across translations.

Accuracy and Subject Knowledge

Accuracy entails selecting the most appropriate and context-specific equivalents in the target language. Technical translators must be aware of the nuances of industry-specific vocabulary. Misinterpretation of a term due to superficial lexical similarity—often referred to as “false friends”—can significantly distort the meaning of a document. For example, the English term “fabrication” may be mistakenly translated as “фабрикація” (fabrication in the sense of falsification), rather than “виробництво” (manufacturing).

Polysemy and Context

One of the challenges in scientific translation is dealing with polysemous terms—those that have multiple meanings depending on context. For instance, the word “drive” may refer to a mechanical component, a computer storage device, or a motivational



factor, depending on the field. The translator must carefully analyze the context to determine the correct interpretation.

Neologisms and Innovation

With the continuous advancement of science and technology, new terms frequently emerge. These neologisms often do not appear in standard dictionaries, posing an additional challenge. Translators must conduct in-depth research to understand the concept and find an appropriate translation that aligns with existing terminology in the target language. In some cases, a calque or transliteration may be the only viable option, followed by a brief explanation in parentheses.

Abbreviations and Acronyms

Technical texts are often saturated with abbreviations and acronyms, some of which are standardized, while others may be created ad hoc for a specific document. Understanding the full form and correct meaning is essential for accurate translation. Moreover, the translator must avoid replacing or modifying official abbreviations unless an established equivalent exists in the target language.

Phraseology and Stylistic Features

Another distinct feature of technical texts is the use of set expressions and phraseological units specific to the domain. Some words acquire technical meanings only in certain contexts, which adds complexity to the translation process. For example, the word “load” may refer to an electrical charge, a mechanical force, or a data packet in computing.

Cross-Linguistic and Cultural Issues

Cultural and extralinguistic knowledge also plays a role in localization—the adaptation of content not only linguistically but also culturally. Measurement units, standards, and even graphical symbols may need to be adjusted to fit the expectations of the target audience. Localization ensures the text is both comprehensible and functional in the context of its intended use.

Conclusion.

Translation and localization of scientific and technical texts require more than linguistic competence. They demand precision, clarity, and a methodical approach to



terminology, supported by thorough subject knowledge and research skills. Translators must be aware of challenges such as polysemy, neologisms, false cognates, and abbreviation usage, and must adhere strictly to consistency and industry standards. Enhancing translation quality in this domain is vital for effective global communication and knowledge dissemination in science and technology.

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