

CHAPTER II

LITERATURE REVIEW

2.1 Telecommunication

The concept of “telecommunications” had its etymological roots in the combination of the Greek morpheme ‘tele-’, which denoted distance, and the Latin morpheme ‘communicare’, which meant to share. Fundamentally, telecommunications referred to the use of technology to facilitate the transmission or delivery of information across geographical locations.

Furthermore, Indonesia’s legal framework, specifically the Constitution of the Republic of Indonesia No. 36 of 1999, comprehensively defined telecommunications as any form of transmission, sending, or receiving of information—whether in the form of signs, signals, text, images, sound, or audio—realized through cable-based, optical, radio, or other electromagnetic spectrum systems. Thus, this field possessed an inherent connection with both wireless and wired information exchange.

Telecommunication was the process of sending, receiving, and exchanging information, such as voice, text, images or videos, through means such as copper cables, fibre optics, or electromagnetic waves (Abed, 2023). The basic principles of telecommunications included the following important steps:

- a. Information processing, data was collected and converted into a signal format suitable for transmission.
- b. Encoding and transmission, the encoder converted the data into binary format, which was then converted into electronic or electromagnetic signals by the transmitter.
- c. Selection of transmission medium – the signal was transmitted via a physical medium (e.g., twisted pair cable, coaxial cable, fibre optic cable) or wireless medium (e.g., radio waves, microwaves, infrared, satellite), depending on distance, cost, and environment (Trivusi, 2022).

- d. Reception and decoding – the receiver converted the signal back into a format that could be read or heard by humans (Freeman, 2005).

There were three types of communication: simplex (one-way transmission), half-duplex (two-way transmission), and full-duplex (simultaneous two-way transmission). These basic concepts formed the foundation of all modern communication systems (Abed, 2023).

2.2 Glossary

According to the 2025 edition of the Indonesian Language Dictionary (Kamus Besar Bahasa Indonesia), a glossary was defined as a concise dictionary or a list of specialized terms accompanied by explanations within a particular field. Similarly, (Maculan et al. 2023) described a glossary as a collection of definitions focused on a specific subject area, intended to clarify words and expressions used in a particular language, discipline, or domain of human activity. Often referred to as a terminology dictionary, a glossary played a crucial role in ensuring the consistent and accurate interpretation of terms, especially within translation contexts. By arranging entries alphabetically, glossaries helped reduce the risk of misunderstanding or misinterpretation.

Glossaries were generally developed for specific subject areas such as education, information technology, or linguistics. They were designed to address the informational needs of their intended audiences and were commonly available in two main formats. Printed glossaries were typically published as books, often by official language development institutions such as the Indonesian Language Development and Promotion Centre. Meanwhile, digital glossaries could be accessed through smartphone applications or online platforms, offering searchable and regularly updated content.

The discipline of glossography, which focused on the creation of glossaries, investigated how explanatory notes (glosses) were woven into texts and established a theoretical framework for managing terminology. These principles

were particularly crucial in the field of telecommunications, where glossaries functioned as essential translation tools for technical terms that did not have direct equivalents in other languages. By offering standardized definitions for concepts like latency, bandwidth allocation, and 5G network segmentation, telecommunications glossaries facilitated the precise transfer of knowledge in international standard documents, technical manuals, and regulatory frameworks. Their significance grew considerably with the swift progress of digital communication technologies, as consistent terminology helped to avert misunderstandings during multinational collaborations and equipment interoperability tests.

A glossary, therefore, was designed to be a systematically organized, field-specific, and regularly updated reference that offered clear definitions while taking into account cultural and linguistic subtleties, especially in technical fields like telecommunications. It needed to be available in both digital and print formats to cater to diverse user needs and to function as a standardized resource that ensured translation consistency and accurate professional communication. Consequently, foreign terms that lacked existing Indonesian equivalents were specifically compiled into an alphabetized glossary to assist users in finding contextually appropriate terms while preserving the consistency of technical terminology. Such a glossary included detailed explanations to prevent misinterpretations, particularly in dynamic fields, which made the translation and comprehension of technical documents more efficient and accurate—a necessity that became increasingly vital as technological advances continuously introduced new terminology.

2.3 Technical Translation Theory

Translation was the process of conveying the meaning of a text into another language in the way that the author intended it to be understood (Newmark, 1988). This process involved not only transferring words from one language to another

but also ensuring that the message, tone, and context of the original text were preserved. According to Catford (1965), translation is “the replacement of textual material in one language (SL) by equivalent textual material in another language (TL).” However, this replacement did not always cover the entire text, as some elements, such as graphology, might not have direct equivalents. In some cases, achieving equivalent effects was quite challenging, especially when there were differences in purpose—for instance, when the SL text aimed to persuade while the TL text aimed merely to inform—or when significant cultural gaps existed between the SL and TL.

Thus, translation theory not only explained how meaning was transferred from the source language (SL) to the target language (TL) but also ensured that the translation remained accurate, consistent, and aligned with the original author’s intent.

In some cases, translation required specialization in specific fields because the documents being translated were often technical, formal, and carried significant implications for policies or governmental decisions. Technical translation was a specialized branch of translation that focused on converting documents related to technical fields—such as politics, commerce, finance, and government—from one language to another. It was primarily distinguished from other types of translation by its reliance on specialized terminology, even though these terms generally made up only around 5–10% of the text (Newmark, 1988). Translators needed to understand the detailed concept of each term, as it could carry different meanings depending on the context and field of study (Saptaningsih, 2018).

Technical translation was commonly found in texts such as technical reports, including instructions, manuals, notices, and publicity materials, which placed greater emphasis on forms of address and the use of the second person. The Importance of Glossaries in Telecommunication Translation, in the field of telecommunications, technical translation required the use of specialized

glossaries. This was crucial because the industry had precise terminology, experienced rapid technological evolution, and was subject to strict compliance regulations. Telecommunication documents, such as technical manuals, patents, and regulations, contained specific terms that had to be translated consistently. A glossary played a key role in ensuring accuracy, preventing ambiguous interpretations, and facilitating the adaptation to new terminology. Without this tool, even minor translation errors could have resulted in technical misunderstandings, legal issues, or operational failures. Therefore, glossaries were essential for maintaining clarity and reliability in global telecommunication communications.

A Systematic Process for Technical Translation, according to Newmark (1988), technical translation was a systematic process designed to guarantee accuracy and clarity. The initial stage began with a comprehensive reading of the text to grasp its context, tone, and purpose. Subsequently, the translation had to be adapted to the target language's "house style," adhering to the formatting standards set by the client or publication, such as guidelines for technical reports or journals. Translators paid meticulous attention to every detail—words, figures, and punctuation—all of which had to be accounted for. They used several key strategies: transfer (retaining original terms like institutional or journal names), translation (for common terms), or providing explanatory notes (for less transparent terms, often via footnotes). It was critically important for translators to ensure that the final product was culturally and professionally appropriate for its intended audience.

2.4 Ministry of Communication and Digital Affairs Republic of Indonesia

The Ministry of Communication and Digital Affairs is the government institution responsible for administering state affairs in the fields of communication and information technology (Peraturan Menteri Komunikasi dan Digital, 2025). The ministry plays a central role in standardizing

telecommunication terminology in Indonesia, which is necessary to avoid confusion and assist alignment among groups involved in standards development (ITU-T, 1994). This initiative is expected to set a precedent for other ministries facing similar challenges.

To achieve this, the ministry developed a Telecommunication Glossary. This bilingual Indonesian-English product provides standardized terminology, clear definitions, and example sentences from authoritative sources like ITU-T and ISO guidelines. The glossary not only addressed issues with inconsistent terminology but also contributed to improved clarity, operational efficiency, and regulatory compliance within Indonesia's digital communication sector.

2.5 Previous Studies

Rohani and Suyono (2021) conducted a study entitled Developing an Android-Based Bilingual E-Glossary Application of English for Specific Purposes (ESP), which focused on creating a mobile application to assist learners in understanding ESP-related terminology. Another relevant contribution came from (Maculan, et. al 2023), who introduced A Glossary for Knowledge Organization Systems Terminology, focusing on the conceptual and systematic organization of terms within knowledge systems. In a different context, (Widianti, et. al 2024) developed a -based product titled Developing a Slang Terms Dictionary, which compiled informal vocabulary into a structured reference format.

Although these previous studies made significant contributions to glossary and dictionary development, most of them emphasized either digital-based applications or non-technical language contexts. None specifically targeted the telecommunications sector nor explored the -based approach for specialized technical terminology.

In line with these studies, the present research introduces an innovation through the development of The Telecommunication Glossary, a bilingual (Indonesian–English) reference book that compiles telecommunications terms.

The glossary contains definitions, explanatory contexts, and example sentences, with its primary materials drawn from official documents published by the Ministry of Communication and Digital Affairs of the Republic of Indonesia. This product was designed to support operational and documentation needs by collecting essential terms frequently used in regulations, reports, and formal publications.

To facilitate broader usability, the glossary is available in both printed and electronic (PDF) formats. The electronic version includes additional features such as keyword search and offline availability, enabling users to access the glossary even without an internet connection. With its format and features, The Telecommunication Glossary is expected to serve as a practical and comprehensive reference for both institutional and academic users in understanding telecommunications terminology accurately and contextually.