

CHAPTER II LITERATURE REVIEW

2.1 Telecommunication

The term "telecommunication" originates from the Greek word "tele," meaning "distant," and the Latin word "communicare," meaning "to share." Telecommunication refers to the technology of transmitting or conveying information from one place to another (Bonok, 2023). According to the *Law of The Republic of Indonesia Number 36 of 1999 on Telecommunications*, telecommunication encompasses any transmission, sending, or receiving of information in the form of signs, signals, text, images, sound, or audio through wired, optical, radio, or other electromagnetic systems.

Telecommunication is closely related to the exchange of information over long distances via the internet, telephones, radio, and television. Telecommunications are not limited to voice telephony provided by local phone companies, but it encompasses diverse an array of electrical communication at a long-distance including telephone, internet, and image information, such as television and fax (Freeman, 1999). Speaking about digital technology, telecommunication serves as the forefront of facilitating social interaction, business, and global information exchange. Telecommunication can be classified into three main types of communication (Solekan, 2009, as cited in Laili, 2023):

a. One-Way Communication (Simplex)

In this type, the sender and receiver cannot interact directly through the same medium. Examples include pagers, television, and radio broadcasts.

b. Two-Way Communication (Duplex)

Here, the sender and receiver can interact directly and continuously using the same medium. Common examples are telephone calls, Voice over IP (VoIP), and video calls.

c. Half-Duplex Communication

In this mode, communication occurs alternately but remains continuous. Examples include walkie-talkies, fax machines, and chat rooms.

For a telecommunication system to function effectively, four key components are essential (Widyanto et al., 2023):

- a. Information: The data being transmitted, which can be in the form of voice, text, images, or even large document files sent as attachments.
- b. Transmitter (Sender): The device or system that initiates the transmission.
- c. Receiver: The device or system that receives the transmitted information.
- d. Transmission Medium: The channel through which the information travels, such as cables, optical fibers, or wireless signals.

The scope of telecommunication had expanded significantly from its early applications in telegraphy and telephony to modern satellite systems, mobile networks, and internet-based communications. Telecommunication have become an indispensable part of modern economic growth, serving as the foundation for global connectivity, information exchange, and technological innovation (Musa et.al, 2024). Its development had played a crucial role in advancing globalization, supporting digital economies, enhancing national defense, and facilitating public services. Telecommunications have been proved to enable societal participation, support national security, and serve as a technological backbone across multiple sectors (Enebli, 2024). As such, telecommunication was not only a technical discipline but also a vital enabler of social and economic growth.

Within the scope of telecommunication, radiocommunication occupied a fundamental position as it focused on the use of radio waves for wireless information transmission. This foundational role has been emphasized by the International Telecommunication Union (ITU), highlighting radiocommunication as essential for managing the global radio-frequency spectrum and enabling interconnected wireless services (International Telecommunication Union, 2024).

Radiocommunication, as defined in the ITU Radio Regulations, encompassed a wide range of services utilizing the frequency spectrum, such as fixed, mobile, broadcasting, and satellite services, thereby illustrating its broad and diverse scope (International Telecommunication Union, 2018). The radio-frequency spectrum, being a limited resource, required careful regulation and management at both international and national levels to ensure that communication services could operate in an orderly manner and without harmful interference.

The interrelation between telecommunication and radiocommunication was evident in their roles as the foundation of modern global communication. Telecommunication provided the broader framework for information exchange, while radiocommunication served as a vital medium enabling wireless transmission across borders and sectors. The diversity of terminology in both fields reflected the necessity of standardized references to minimize ambiguity, particularly since many technical terms were highly specific and used in international contexts. Therefore, the development of a bilingual glossary became highly relevant to bridge the understanding between technical experts, policymakers, and users with non-technical backgrounds

2.2 Glossary

Based on *Kamus Besar Bahasa Indonesia*, Glossary is “*kamus dalam bentuk yang ringkas; daftar kata dengan penjelasannya dalam bidang tertentu*” it means a concise dictionary; a list of specialized terms with their definitions in a particular field (KBBI, 2025). A glossary is a collection of definitions focused on a specific subject, explaining words and expressions within a particular language, field of knowledge, or human activity (Maculan, et. al, 2023). Also known as a terminology dictionary, a glossary ensures consistent and accurate understanding of terms, especially in translation contexts. By presenting terms in alphabetical order, it helps minimize misinterpretation errors.

Glossaries are typically tailored to specialized fields, such as Education, Information Technology, or Linguistics. They aim to address the needs of their target audiences, and they generally exist in two formats: printed glossaries, which are published as books and often officially released by language development institutions such as *Balai Pengembangan dan Pembinaan Bahasa Republik Indonesia*, and digital glossaries, which are accessible as smartphone applications or online databases offering searchable and updatable content.

The study of glossary creation, known as glossography, examines how explanatory notes (glosses) are integrated into texts and develops theoretical frameworks for terminology management (Tarp & Gouws, 2023). These foundations become particularly crucial in telecommunications, where glossaries serve as vital translation tools for technical terms lacking direct equivalents between languages. By providing standardized definitions for concepts like "latency," "bandwidth allocation," or "5G network slicing," telecommunications glossaries ensure precise knowledge transfer across international standards documents, technical manuals, and regulatory frameworks. Their role has grown increasingly important with the rapid evolution of digital communication technologies, where consistent terminology prevents misinterpretation in multinational collaborations and equipment interoperability testing.

A glossary should be a systematically organized, field-specific, and regularly updated reference that provides clear definitions while considering cultural and linguistic nuances, particularly in technical fields like telecommunications. It must be accessible in both digital and print formats to accommodate diverse user needs and serve as a standardized resource to ensure translation consistency and professional communication accuracy. Therefore, foreign terms without existing Indonesian equivalents particularly need to be compiled into an alphabetized glossary to help users find contextually appropriate terms while maintaining technical terminology consistency. Such a glossary should

include detailed explanations to prevent misinterpretations, especially in dynamic fields, making technical document translation and comprehension more efficient and accurate - a need that grows increasingly crucial as technological advancements continuously introduce new terminology.

2.3 Technical Translation Theory

Translation is the process of conveying the meaning of a text into another language in the way that the author intended the text to be understood (Newmark, 1988). This process involves not only transferring words from one language to another but also ensuring that the message, tone, and context of the original text are preserved. According to Catford (1965), translation is “the replacement of textual material in Source Language (SL) by equivalent textual material in target language (TL)”. However, this replacement does not always cover the entire text, as some elements, like graphology, may not have direct equivalents. In some cases, achieving equivalent effects can be quite challenging, especially when there are differences in purpose, such as when the SL text aims to affect while the TL translation aims to inform or when there are significant cultural gaps between the SL and TL texts. Thus, translation theory not only explains how meaning is transferred from the source language (SL) to the target language (TL), but also ensures that the translation remains accurate, consistent, and aligned with the original author's intent.

Some cases, translation requires specialization in specific fields because the documents being translated are often technical, formal, and have significant implications for policies or government decisions. Technical translation is a specialized branch of translation that focuses on converting documents related to technical fields, such as politics, commerce, finance, government, etc., from one language to another. Technical translation is primarily distinguished from other types of translation by its reliance on specialized terminology, even though these terms generally make up only around 5-10% of the text (Newmark, 1988).

Translator needs to understand the detailed concept of a term because it can carry different meanings depending on the situation and the field of study (Saptaningsih, 2018). Technical translation is commonly found in texts such as technical reports, including instructions, manuals, notices, and publicity materials, which place greater emphasis on forms of address and the use of the second person.

According to Newmark (1988), Technical translation involves a systematic method to ensure accuracy and clarity. The process begins with reading the text thoroughly to grasp its context, tone, and purpose. Next, the translation must adapt to the target's house-style language, adhering to the client's or publication's formatting standards, such as technical reports or journal guidelines. Translators must pay attention to detail in every word, figures, punctuation and must be accounted for, prioritizing transfer (retaining original terms like institution/journal names), translation (for common terms), or explanatory notes (for opaque terms in footnotes). It is important for Translator should be consider to ensures the translation aligns with the audience's cultural and professional background.

Technical translation in telecommunications requires specialized glossaries due to the field's precise terminology, rapid technological evolution, and strict compliance requirements. Telecommunication documents contain industry-specific terms that must be translated consistently across technical manuals, patents, and regulatory documents. A glossary ensures accuracy, prevents ambiguous interpretations, and adapts to new terminology as the field advances. Without it, even minor translation errors could lead to technical misunderstandings, legal issues, or operational failures, and making glossaries essential for maintaining clarity and reliability in global telecom communications.

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 of Communication and Digital Affairs plays a central role in standardizing telecommunication terminology in Indonesia given the rapid development of digital infrastructure that requires harmonization of technical terms. As the regulatory authority, Ministry of Communication and Digital Affairs is responsible for ensuring consistent terminology usage in official documents, regulations, and publications related to the telecommunication sector. Terminology standardization is necessary for two main reasons: to avoid confusion to standards users by introducing conflicting terms and definitions; to assist alignment between the various groups involved in telecommunication standards development (ITU-T, 1994). Its implementation is expected to set a precedent for other ministries/institutions facing similar challenges in managing technical terminology.

Based on the above information, there is a clear alignment between theoretical foundations and practical needs, reinforcing the writer's confidence in developing a Telecommunication Glossary. This product included standardized telecommunication terms presented in an Indonesian-English glossary format. Additionally, the glossary featured definitions to enhance user understanding and facilitate quick access to accurate terminology. To ensure practicality, the Telecommunication Glossary also provided example sentences derived from documents referencing international regulations, such as ITU-T standards and ISO guidelines. Therefore, this initiative not only addresses immediate terminological challenges but also supports broader goals of clarity, efficiency, and compliance in Indonesia's digital communication landscape.

2.5 Previous Studies

A review of relevant previous studies served as an important foundation for this research. It provided insights into the outcomes of earlier works and offered a comparative perspective to support the current study. 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, Mesquita, and Falcão's (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, Amilia, and Vardan's (2024) developed a handbook-based product titled Developing a Slang Terms Dictionary, which compiled informal vocabulary into a structured reference format. These studies highlighted various approaches to glossary development but did not specifically address the terminology used in the telecommunications sector or explore handbook formats in that context.

Despite the valuable approaches to glossary development demonstrated by these studies, significant gaps have been identified in the context of telecommunications. Rohani and Suyono's (2021) product offered certain significances for android-based e-glossary. However, its application was primarily focused on educational purposes, which is ignored the technical and highly regulated nature of telecommunications terminology. In other study, Maculan, Mesquita, and Falcão (2023) highlighted the importance of systematic conceptual organization, yet did not address the standardization of sector-specific terminology in policy and regulatory contexts. Furthermore, Widianti, Amilia, and Vardan's (2024) demonstrated the practicality of printed formats by their handbook, yet it placed significant emphasis on slang vocabulary. However, this vocabulary is not particularly relevant to professional or technical translation needs. These limitations highlighted the need for studies that combined technical accuracy, institutional applicability, and practical printed design within the telecommunications sector.

The present study introduced several innovations through the development of the Telecommunication Glossary. Unlike previous works, this study adopted a handbook-based format, which had not been widely utilized in glossary

development related to telecommunications. This format offered practical benefits, particularly for institutional users who needed clear and accessible printed references. Furthermore, the glossary included features such as definitions, example sentences, and illustrative images to enhance contextual understanding of each term. Given the dynamic and evolving nature of telecommunications terminology, the glossary was also designed to allow for future updates and revisions, ensuring its continued relevance. These elements distinguished this study from earlier research and addressed the specific needs of professionals working with technical terms in the field of telecommunications.