CREATING A TELECOMMUNICATION: STANDARDIZATION GLOSSARY AS A TRANSLATION AID FOR MINISTRY OF COMMUNICATION AND DIGITAL AFFAIRS REPUBLIC OF INDONESIA

FINAL PROJECT

A Partial Fulfilment of the Requirements for the Degree of

Bachelor of Applied Foreign Language

by

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BACHELOR OF APPLIED FOREIGN LANGUAGE

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2025

STATEMENT OF ORIGINALITY

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APPROVAL SHEET
A FINAL ASSIGNMENT

CREATING A HANDBOOK-BASED TELECOMMUNICATION: STANDARDIZATION TELECOMMUNICATION GLOSSARY AS A TRANSLATION AID FOR MINISTRY OF COMMUNICATION AND DIGITAL AFFAIRS REPUBLIC OF INDONESIA

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ABSTRACT

This research addresses the critical need for standardized and consistent terminology within Indonesia's telecommunications sector, particularly for the Ministry of Communication and Digital Affairs. The study aimed to develop a -based telecommunication glossary as a practical translation aid to enhance accuracy and consistency in official documents and international communications. Employing a seven-stage Research and Development (R&D) methodology adapted from the Borg and Gall (1983) model, the research focused on creating a specialized institutional translation reference tool. The resulting for Telecommunication Glossary is a bilingual (Indonesian-English) reference book. It compiles 127 technical terms across 97 pages, primarily sourced from official documents. Validation by material and media experts, alongside feedback from MCDA policy analysts, technical staff, and interns, confirmed the 's relevance, clarity, usability, and effectiveness. A Likert scale evaluation showed overwhelmingly positive responses, particularly regarding its feasibility for institutional use and adherence to international terminology conventions. The finalized glossary has been submitted for copyright registration and will be distributed to the MCDA's internal library, serving as a reliable resource for internship.

Keyword: Standardization Telecommunication Terminology

ABSTRAK

Penelitian ini menjawab kebutuhan mendesak akan terminologi yang standar dan konsisten dalam sektor telekomunikasi di Indonesia, khususnya bagi Kementerian Komunikasi dan Digital (Kemenkomdigi). Studi ini bertujuan untuk menciptakan kamus telekomunikasi berbasis buku panduan sebagai alat bantu terjemahan praktis. Tujuannya adalah untuk meningkatkan akurasi dan konsistensi dalam dokumen resmi serta komunikasi internasional. Dalam pelaksanaannya, penelitian ini menggunakan metodologi Penelitian dan Pengembangan (R&D) yang terdiri dari tujuh tahapan, diadaptasi dari model Borg dan Gall (1983). Fokus utama penelitian adalah mengembangkan alat referensi terjemahan khusus untuk institusi. Hasilnya adalah Buku Panduan Kamus Istilah Telekomunikasi, sebuah buku referensi bilingual (Indonesia-Inggris). Buku ini berisi 127 istilah teknis yang disusun dalam 97 halaman, sebagian besar diambil dari dokumen resmi Kemenkomdigi. Proses validasi ini memastikan relevansi, kejelasan, kegunaan, dan efektivitas buku tersebut. Evaluasi lebih lanjut menggunakan skala Likert menunjukkan respons yang sangat positif. Hal ini terutama terkait dengan kelayakan penggunaannya untuk keperluan institusional dan kepatuhannya terhadap konvensi terminologi internasional. Glosarium yang telah disempurnakan ini sudah didaftarkan untuk hak cipta dan akan didistribusikan ke perpustakaan internal Kemenkomdigi. Diharapkan, buku ini akan menjadi sumber daya yang andal bagi staf dan peserta magang di kementerian tersebut.

Kata kunci: Standarisasi Telekomunikasi Terminologi

CHAPTER I
INTRODUCTION

1.1 Research Background

The growing interconnectedness of the global community, propelled by progress in information and communication technologies, had intensified the importance of intercultural communication, especially within the domains of governmental and technical diplomacy. According to (Biletska et al.., 2021), intercultural communication formed the foundation of diplomatic relations, functioning as a key mechanism for fostering international cooperation, advancing foreign policy agendas, encouraging collaboration, and maintaining both formal and informal ties among states. Contemporary global issues—such as the management of radio frequency spectrum, digital infrastructure, and cybersecurity—required cooperative multilateral responses. These international frameworks were later incorporated into Indonesia's national regulatory systems, which necessitated accurate translation.

The telecommunications sector represented a strategic area marked by highly specialized terminology and regulatory frameworks. With the internet reaching 69.21% of the Indonesian population and mobile phone use at 67.29%, telecommunications played a critical role in everyday life, highlighting the need for resilient and precise communication and infrastructure systems (BPS, 2024). As a result, regulatory frameworks in this field were required to remain adaptive to technological advancements while also maintaining the precision and consistency of technical terminology for effective communication on both national and international fronts.

Maintaining accuracy and consistency in translating technical terms was essential for achieving mutual comprehension, particularly within the telecommunications field. Misinterpretation or mistranslation of technical language had the potential to obscure intended meanings and lead to legal or diplomatic complications. Yue, Ortega, and Church (2024) identified technical terminology as

a major challenge for professional translators. This underscored the necessity for innovative strategies to improve translation precision, efficiency, and semantic clarity—especially in the context of legal documents.

The Ministry of Communications and Digital Affairs of the Republic of Indonesia played a critical role in shaping, implementing, and coordinating national policies in the communications and digital sectors. One of its core responsibilities involved representing Indonesia in international platforms such as the International Telecommunication Union (ITU), the Asia-Pacific Telecommunity (APT), and the International Telecommunications Satellite Organization (ITSO). In these forums, Indonesian representatives participated in deliberations on technical regulations, engaged in negotiations, and articulated the nation's stance on global policy matters—particularly in telecommunications. Once ratified, global policies adopted through these forums became foundational references for Indonesia's domestic telecommunications regulations. Therefore, the use of standardized and coherent technical terminology was essential to ensure accurate interpretation and to minimize ambiguity in the translation of both legal and technical documents.

Despite this need, the Ministry currently did not possess an official, standardized compilation of technical terms for translation purposes. Interviews with policy analysts within the Ministry revealed ongoing difficulties in identifying appropriate Indonesian equivalents for specific terms. Although sworn translators were employed, challenges in translating specialized terminology persisted. The existing glossary, maintained in spreadsheet format, was unstructured and lacked alphabetical organization. As a result, translators frequently used inconsistent equivalents for the same terms, causing variation in official documentation. This inconsistency not only disrupted workflow efficiency but also posed a risk to Indonesia's credibility in international technical diplomacy. The ITU's Telecommunication Standardization Sector (ITU-T) convened global experts to develop international standards—ITU-T Recommendations—which served as

critical components of the global information and communication technology (ICT) infrastructure.

To resolve this issue, the development of a telecommunications glossary in the form of a offered a practical and functional solution. Such a would facilitate ease of use for translators and Ministry personnel engaged in drafting or translating official documents. The glossary could be developed by collecting terms that frequently appeared in Ministry documents as well as those derived from international references such as ITU resolutions, APT technical reports, and ITSO agreements. This strategy would help ensure national applicability while maintaining alignment with international contexts.

With these factors in mind, the present study aimed to introduce an innovative solution to support translation activities by fostering consistency and enhancing translation quality. The research was designed to meet the institutional demand for a dependable and standardized translation resource, while also contributing to scholarly discussions in the fields of technical translation and terminology documentation through the creation of a -based telecommunications glossary.

1.2 Problem of Statements

a. How should the compilation of terms for a telecommunications glossary have been carried out in order to align with the requirements of the Ministry of Communication and Digital Affairs of the Republic of Indonesia?
b. How is the feedback of the staff at the Ministry of Communication and Digital Affairs of the Republic of Indonesia toward this glossary?

1.3 Objectives of Research

Based on the statement of the problem, the objectives of this research were:

a. To assess the significance of a telecommunications glossary for the Ministry of Communication and Digital Affairs of the Republic of Indonesia.

b. To compile a structured glossary in accordance with the established , including definitions, contextual usage, and bilingual equivalents (Indonesian–English).

1.4 Significance of Research

This research holds both theoretical and practical in value advancing glossary development the quality and consistency of telecommunications terminology :

1. Theoretical Contribution

a. To expanding the scope of applied lexicography, particularly in the development of glossaries based on guidebooks relevant to the Standardization sector;
b. To establishing a methodological framework for compiling glossary entries that incorporated contextual usage and expert validation.

2. Practical Contribution

a. To improve the quality, consistency, and accuracy of technical document translations in accordance with the Ministry's requirements;
b. To serve as an authoritative reference for terminology use in official contexts.

1.5 Output of the Research

Telecommunications Glossary was compiled as a bilingual reference book consisting of Indonesian and English telecommunications terms. It contained definitions, explanatory contexts, as well as example sentences, the materials of which were primarily drawn from official documents published by the Ministry of Communication and Digital Affairs of the Republic of Indonesia. The glossary was compiled to support operational and documentation needs by collecting important terms commonly used in regulations, reports, and formal publications.

The was classified into three broad subject areas: Radiocommunication, Standardization, and Development. The Radiocommunication section occupied page 2 to 45. The Standardization section page 47 to 90. The Development section

was page 92 to 124. To facilitate use in varied environments, the glossary was made available in both printed and electronic (PDF) formats. The electronic edition came with extra features such as keyword search and offline availability to help users where internet connectivity was weak.

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 Affair 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.

CHAPTER III
METHODOLOGY

3.1 Research Methodology

This research utilizes a Research and Development (R&D) approach, a systematic process for creating or improving products. The goal of R&D is to find practical solutions to problems through problem analysis, prototype design, and the creation of final innovations. A core principle of this method is that product development begins with a thorough analysis of an existing problem. This aligns with the framework of Borg and Gall (1983), which emphasizes that R&D should be problem-driven, resulting in a product or model that directly solves the identified issue.

This specific study aims to solve the problem of translating technical legal terminology by creating a glossary for the telecommunications sector. The is designed to be a practical reference for accurately translating specialized technical texts that require clear and precise interpretation. Therefore, the study will follow the Borg and Gall (1983) R&D model to systematically develop this glossary .

The Research and Development (R&D) method requires a sytematical process to achieve the research objectives. Borg and Gall (1983) research and development model provide a systematic framework for developing a model or product. This model consists of ten stages in product or model development, as illustrated in the diagram below:

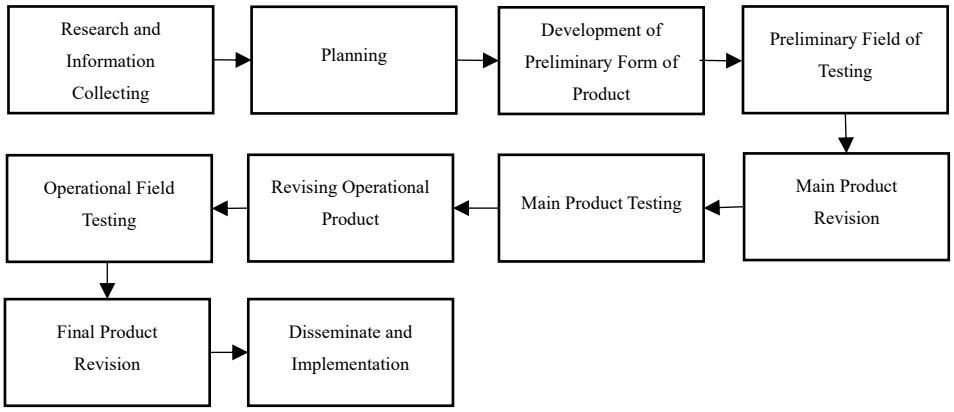


Figure 3.1 Borg and Gall R&D Model (1983) Framework

The product development process comprised a structured sequence of ten stages. The initial phase, titled Preliminary Research and Information Gathering, involved analyzing needs, identifying existing gaps, and formulating research questions through a combination of literature reviews, surveys, interviews, and observational methods. In the subsequent Planning Stage, the focus was directed toward establishing clear objectives, determining the appropriate theoretical framework, and designing a comprehensive research methodology.

During the Initial Product Prototype Development Stage, prototypes, instructional materials, evaluation tools, and user manuals were created to ensure coherence with defined learning objectives. This was followed by Initial Field Testing, which consisted of small-scale trials conducted on a limited sample to obtain feedback regarding usability and effectiveness. The results from this testing phase were analyzed to detect any deficiencies, leading to significant modifications in the product design.

The improved version then proceeded to the Main Field Testing phase, during which it was implemented across a broader and more diverse population to assess its performance under real-world conditions. Prior to the final implementation, which functioned as the last verification stage, additional revisions were carried out to enhance the product's functionality and relevance.

In the Final Revision Stage, the product was refined and finalized to meet all predefined criteria. It subsequently entered the Promotion and Implementation Stage, where the completed product was disseminated, supported, and adopted within appropriate educational contexts. This systematic process ensured that the final product was grounded in theory, validated through empirical evidence, and equipped for practical application.

Previous studies demonstrate often modify Borg and Gall's (1983) ten-step R&D model into simpler frameworks tailored to their specific needs. For instance, the researchers condensed the process into three key stages: (1) needs analysis, (2) model development, and (3) model validation and implementation (Muhlis et al., 2024). Similarly, other researchers focused only on the initial phases research and data collection, followed by product design and development (Syifauzzuhrah, et al., 2023). While the R&D model is typically implemented sequentially in its entirety, this study adapts the R&D model to seven stages because the Telecommunication Glossary for Indonesia's Ministry of Communication and Digital Affairs does not require mass production. The research streamlined the approach to maintain methodological rigor while focusing on phases essential for developing these specialized institutional needs as translation reference tool.

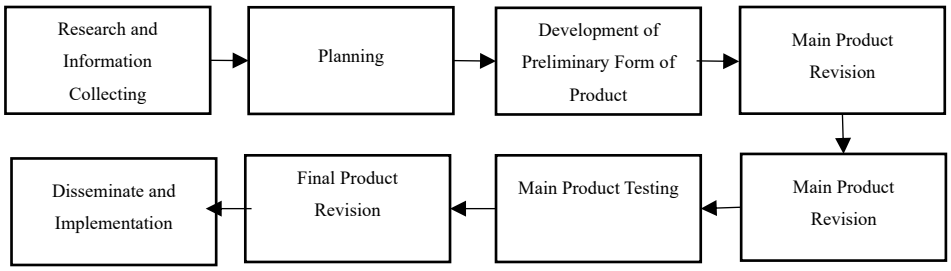


Figure 3.2 Eight stages of creating a glossary

Figure 3.2 illustrated the eight stages undertaken in the development of The Telecommunication Glossary. The process began with Research and Information Collecting, which involved identifying relevant sources and compiling

telecommunications terminology from official documents. The next stage, Planning, determined the scope, structure, and intended users of the glossary. This was followed by the Development of the Preliminary Form of Product, where the initial draft was designed.

Subsequently, the product underwent Main Product Revision to refine the initial draft based on expert judgment and feedback. After that, Main Product Testing was conducted to evaluate the practicality, usability, and accuracy of the glossary in real contexts. The process then continued with Final Product Revision, which ensured the glossary met all predefined criteria. Finally, the Dissemination and Implementation stage made the glossary available in both print and electronic formats, enabling its use as an institutional reference tool.

Through these eight stages, the glossary was systematically developed, revised, and validated, which ensured methodological rigor while producing a practical and accessible bilingual reference for the telecommunications sector.

3.2 Development Procedures

3.2.1 Research and Data Collecting

During this phase, a systematic approach was required to obtain primary data by selecting and applying appropriate data collection methods. Data collection techniques refer to methods employed to acquire necessary information for a study or research project (Judijanto et al., 2024). This study adopts qualitative data collection methods. Every research project requires instruments tools used to obtain research data that address the study's questions (Waruwu, 2024). The research employs three key instruments: semi-structured interviews, literature review, and document analysis.

Semi-structured interviews combine elements of both structured and unstructured formats (Iba & Wardanha, 2021). While working within a predetermined question framework, this approach allows respondents freedom to elaborate on their answers, enabling the collection of structured information

while permitting deeper exploration. Through these interviews, the glossary can be customized to meet the ministry's specific requirements. Here is the list of interview questions that has been translated into English, as follows:

Table 3.1 List of Questions for Interview

No.	Questions
1.	Could you describe your experience in translating technical terms found in international documents related to radiocommunication, standardization, or development?
2.	What are the most common challenges you face when trying to understand or convey foreign terms related to radiocommunication, standardization, or development?
3.	How do you usually ensure accuracy when translating highly technical or specialized terms and concepts?
4.	Have you ever encountered specific terms whose meanings were not immediately clear or easy to understand? Could you share your experience?
5.	What types of sources or references have been most helpful to you in understanding technical terms in telecommunications, standardization, or development-related tasks?
6.	Is there a need or opportunity for a new type of tool or medium to assist in translating these types of terms more effectively?

The literature review involves comprehensive examination of relevant theoretical sources and previous studies to understand telecommunications terminology contexts, while comparing and contrasting existing definitions. This process ensures the resulting glossary provides comprehensive, accurate definitions aligned with both international standards and ministry’s needs, ultimately serving as a reliable reference for all stakeholders.

Document analysis utilizes written sources including reports, records, books, and archives (Iba & Wardanha, 2021). This method is particularly valuable for historical research or policy analysis. For this study, the glossary will reference documentation from international telecommunications standardization organizations that inform ministry regulations and policies.

Following data collection through semi-structured interviews, literature review), and documents analysis, The research will conduct thematic analysis with data triangulation to validate findings. Triangulation combines multiple data sources to enhance reliability (Sugiyono, 2019). Subsequent glossary development will involve: (1) technical domain categorization of terms, (2) expert validation, and (3) user-friendly visual formatting. After that, The research will compile an initial entry list of telecommunication terms and analyzes ministry documents to extract frequently used but inconsistently translated terms to put in the glossary.

3.2.2 Planning

During this phase, the initial concept for the glossary was developed. The conceptualization process began with the design of the visual elements, including the cover, layout structure, typography, illustrations, and a color scheme aligned with the ministry's official branding and visual identity. To support collaborative design efforts and incorporate graphic elements suited to the project's objectives, professional design services were employed to create the layout.

Although visual presentation was an important consideration, the content of the remained the primary focus. The glossary entries consisted of an alphabetically ordered list of predefined technical terms, each accompanied by definitions in both Bahasa Indonesia and English. Additionally, contextual usage examples were provided, particularly within regulatory, policy, and telecommunications-related frameworks.

The final product was planned for Dissemination in both printed and digital PDF formats. The digital version was equipped with a keyword search function to enhance accessibility and user experience. This was intended to serve as a reference tool to support personnel in accurately translating and interpreting technical documents. Upon completion of the planning stages, the process advanced to the development of the preliminary product form.

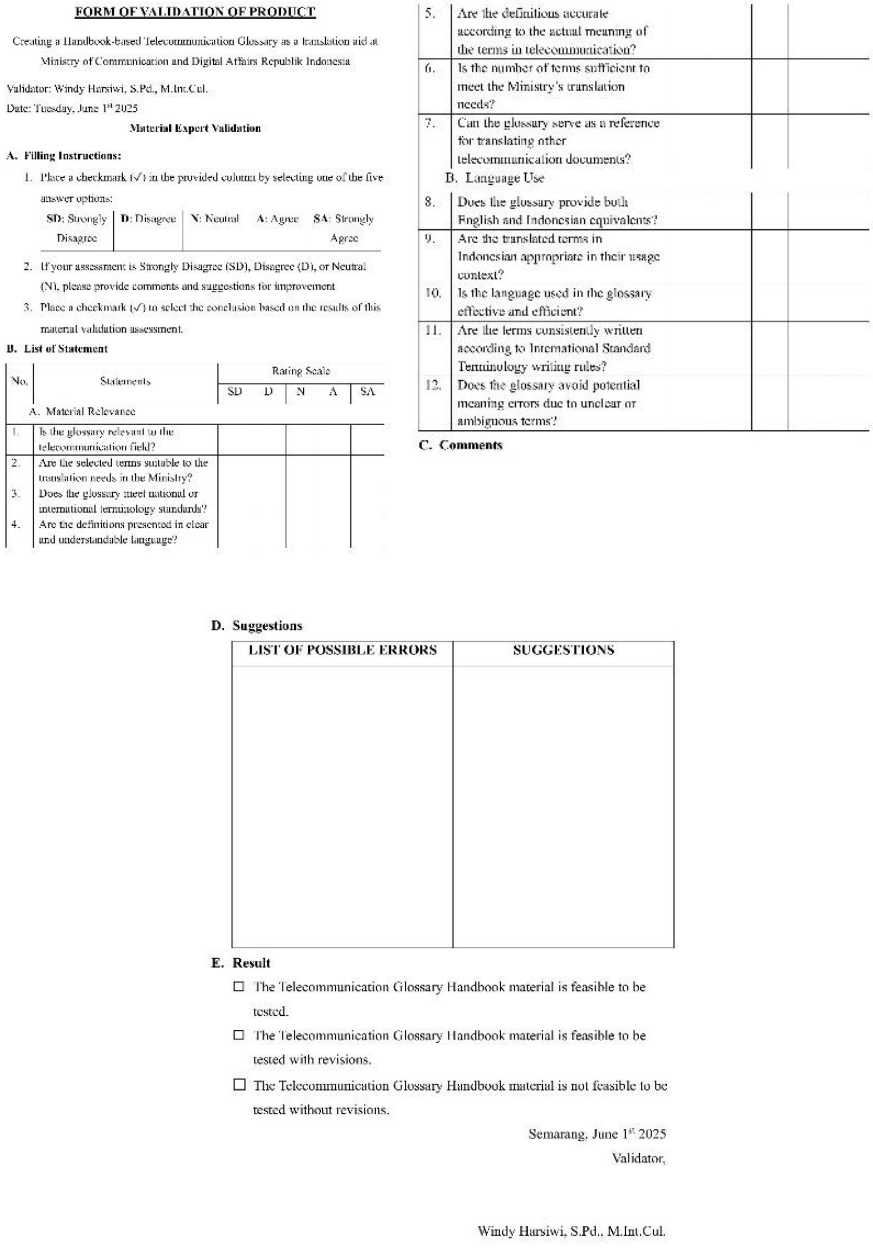
3.2.3 Development of Preliminary Form of Product

After compiling all components through the previously outlined methods, the research team integrated all content elements into the draft. This phase focused on refining key sections including: (1) Technical terms with clear definitions, (2) Relevant visual illustrations, (3) Contextual examples from ministry documents, (4) Supporting materials (table of contents, appendices, and images or symbol). The research designed the content structure to ensure logical organization and user-friendly navigation, making the accessible to both technical and non-technical users. Special attention was given to dual-format presentation, optimizing layout and readability for both print and digital versions. After that, The research conducted a thorough review of the physical prototype to identify any visual or formatting issues that might only appear in printed form. This quality assurance step guaranteed the product's readiness for the subsequent testing phase.

3.2.4 Prelimary Field Testing

Once the preliminary version of the glossary was completed, it undergoes a comprehensive revision process to ensure its quality and feasibility. The research engages two independent experts, one specializing in media (design and layout) and the other in material (material and language use), to thoroughly evaluate the . In addition, academic supervisors and expert from the Ministry are consulted to provide validation form based on their practical experience. All suggestions and critiques are carefully analyzed and implemented to improve

the ’s content, structure, and design. This phase transforms the initial product into a revised version ready for broader field testing, ensuring that the aligns with professional standards and user expectation



FORM OF VALIDATION OF PRODUCT

Creating a Handbook-based Telecommunication Glossary as a translation aid at Ministry of Communication and Digital Affairs Republik Indonesia

Validator: Windy Harsiwi, S.Pd., M.Int.Cul.

Date: Tuesday, June 1st 2025

Material Expert Validation

A. Filling Instructions:

1. Place a checkmark (✓) in the provided column by selecting one of the five answer options:

SD: Strongly Disagree	D: Disagree	N: Neutral	A: Agree	SA: Strongly Agree

2. If your assessment is Strongly Disagree (SD), Disagree (D), or Neutral (N), please provide comments and suggestions for improvement
3. Place a checkmark (✓) to select the conclusion based on the results of this material validation assessment.

B. List of Statement

No.	Statements	Rating Scale				
		SD	D	N	A	SA
	A. Material Relevance					
1.	Is the glossary relevant to the telecommunication field?					
2.	Are the selected terms suitable to the translation needs in the Ministry?					
3.	Does the glossary meet national or international terminology standards?					
4.	Are the definitions presented in clear and understandable language?					
5.	Are the definitions accurate according to the actual meaning of the terms in telecommunication?					
6.	Is the number of terms sufficient to meet the Ministry's translation needs?					
7.	Can the glossary serve as a reference for translating other telecommunication documents?					
	B. Language Use					
8.	Does the glossary provide both English and Indonesian equivalents?					
9.	Are the translated terms in Indonesian appropriate in their usage context?					
10.	Is the language used in the glossary effective and efficient?					
11.	Are the terms consistently written according to International Standard Terminology writing rules?					
12.	Does the glossary avoid potential meaning errors due to unclear or ambiguous terms?					

C. Comments

D. Suggestions

LIST OF POSSIBLE ERRORS	SUGGESTIONS

E. Result

☐ The Telecommunication Glossary Handbook material is feasible to be tested.

☐ The Telecommunication Glossary Handbook material is feasible to be tested with revisions.

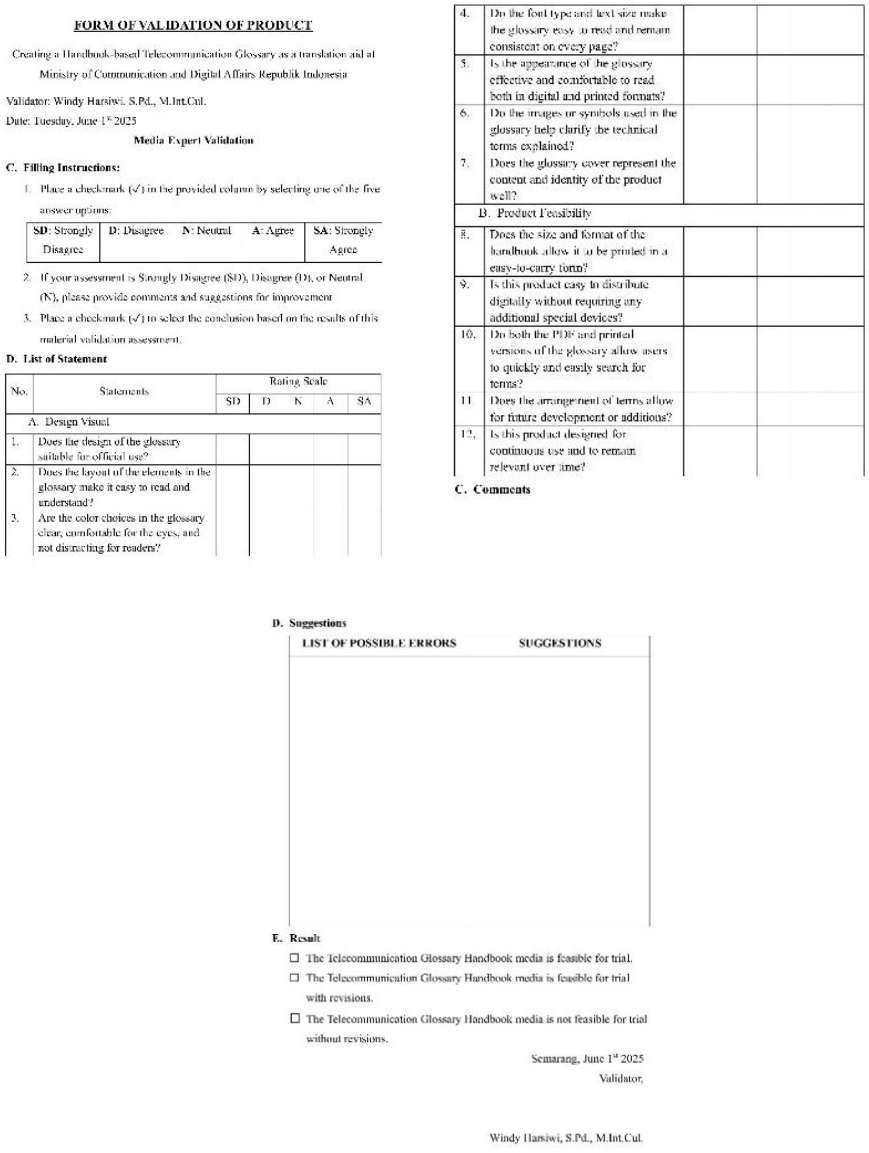
☐ The Telecommunication Glossary Handbook material is not feasible to be tested without revisions.

Semarang, June 1st 2025

Validator,

Windy Harsiwi, S.Pd., M.Int.Cul.

Figure 3.3 Material Form of Product Validation Sheet



FORM OF VALIDATION OF PRODUCT

Creating a Handbook-based Telecommunication Glossary as a translation aid at Ministry of Communication and Digital Affairs Republik Indonesia

Validator: Windy Harsiwi, S.Pd., M.Int.Cul.

Date: Tuesday, June 1st 2025

Media Expert Validation

C. Filling Instructions:

1. Place a checkmark (✓) in the provided column by selecting one of the five answer options:

SD: Strongly Disagree	**D**: Disagree	**N**: Neutral	**A**: Agree	**SA**: Strongly Agree

2. If your assessment is Strongly Disagree (SD), Disagree (D), or Neutral (N), please provide comments and suggestions for improvement
3. Place a checkmark (✓) to select the conclusion based on the results of this material validation assessment.

D. List of Statement

No.	Statements	Rating Scale				
		SD	D	N	A	SA
	A. Design Visual					
1.	Does the design of the glossary suitable for official use?					
2.	Does the layout of the elements in the glossary make it easy to read and understand?					
3.	Are the color choices in the glossary clear, comfortable for the eyes, and not distracting for readers?					
4.	Do the font type and text size make the glossary easy to read and remain consistent on every page?					
5.	Is the appearance of the glossary effective and comfortable to read both in digital and printed formats?					
6.	Do the images or symbols used in the glossary help clarify the technical terms explained?					
7.	Does the glossary cover represent the content and identity of the product well?					
	B. Product Feasibility					
8.	Does the size and format of the handbook allow it to be printed in a easy-to-carry form?					
9.	Is this product easy to distribute digitally without requiring any additional special devices?					
10.	Do both the PDF and printed versions of the glossary allow users to quickly and easily search for terms?					
11.	Does the arrangement of terms allow for future development or additions?					
12.	Is this product designed for continuous use and to remain relevant over time?					

C. Comments

D. Suggestions

LIST OF POSSIBLE ERRORS	SUGGESTIONS

E. Result

- ☐ The Telecommunication Glossary Handbook media is feasible for trial.
- ☐ The Telecommunication Glossary Handbook media is feasible for trial with revisions.
- ☐ The Telecommunication Glossary Handbook media is not feasible for trial without revisions.

Semarang, June 1st 2025

Validator,

Windy Harsiwi, S.Pd., M.Int.Cul.

Figure 3.4 Material Form of Product Validation Sheet

3.2.5 Main Product Revision

The validation was process , it cannot be used to validate the actual product. To edit this content provides a glossary of terms, definitions, glossary, explanations of terms, and consistent Glossary information.

It also includes a detailed description of the highlights, format, organization, and use of the report. This report contains information on how to achieve optimal quality standards when the product was actually used.

3.2.6 Main Product Testing

Following this trial period, participants completed a questionnaire assessing the glossary's clarity, usability, and effectiveness. The collected evaluation data were analyzed to identify both strengths and areas needing improvement in content and presentation. Insights from this main field-testing phase informed the final revisions of the before its official publication and implementation.

Table 3.2 List of Statements for Questionnaire

List of Statements	
Content Aspects	
1.	This glossary is relevant to the field of telecommunication, particularly in the sectors of Radiocommunication, Standardization, and Development
2.	The selected terms in this glossary match the translation needs within the Ministry
3.	This glossary adheres to terminology standards recognized at the national and international levels
4.	This glossary's definitions are written in clear and understandable language for both general users and professionals
5.	The definitions are accurate and align with the actual meaning of the terms in the context of telecommunication, particularly in radiocommunication, standardization, and development

6.	This glossary provides equivalent terms in both English and Indonesian in a consistent and balanced manner
7.	The Indonesian translations are appropriate and contextually accurate for technical and official documents
8.	The language used in this glossary is effective and efficient for translation purposes
9.	The terminology and definitions are consistently written and follow international terminology writing conventions
10.	This glossary successfully avoids potential meaning errors caused by unclear or ambiguous terms
	Design Aspects
11.	The glossary's design is suitable for official or institutional use
12.	The layout of the elements in this glossary makes the content easy to read and understand
13.	The color choices in this glossary are clear, comfortable for the eyes, and not distracting to readers
14.	The font type and text size in this glossary make it easy to read and remain consistent throughout the pages
15.	This glossary's appearance is effective and comfortable to read in both digital and printed formats
16.	The glossary's images and symbols definitively clarify the technical terms.
17.	The cover of the glossary represents the content and identity of the product well
18.	The glossary's compact and portable size and format make it suitable for printing

19.	The glossary's design and layout make it a reliable professional reference in the telecommunications field
20.	This glossary is a media product that is feasible to use and distribute to relevant institutions or stakeholders

A Likert scale 4 point was used in this research. the Likert scale is used to assess the attitudes, opinions, and perceptions of individuals or groups toward a social phenomenon (Sugiyono, 2019). The Likert scale is a widely utilized measurement tool for evaluating abstract constructs, such as attitudes, opinions, or perceptions through a structured response format (Joshi et al, 2015). It consists of a series of statements or questions, each accompanied by a symmetric set of response options that allow respondents to express their level of agreement or disagreement. Likert item options should typically range from four to seven points to provide a balanced and consistent scale for choices (Koo and Yang, 2025). Based on this approach, the formula used to calculate the average score from respondents' assessments is as follows:

$$\overline{x} = \frac{\sum x}{n}$$

Notes:

$\overline{x}$: Average Score

$\sum x$: Total Score

n: Total Respondents

Table 3.3 Likert Scale Score Levels and Intervals

No.	Criteria	Score	Intervals

1.	Strongly Disagree	1	1.00 – 1.75
2.	Disagree	2	1.76 – 2.50
3.	Agree	3	2.51 – 3.25
4.	Strongly Agree	4	3.26 – 4.00

Score analysis is a method used to measure and categorize the level of feasibility based on the assessments provided by respondents. This process offers a clear overview of how well the product design has met the expected standards and user needs.

3.2.7 Final Product Revision

After main field-testing phase, the Telecommunication Glossary will undergo comprehensive revisions to eliminate minor errors and optimize its effectiveness. This phase is to get feedback from supervisor and expert from ministry will be systematically incorporated to enhance the glossary's accuracy, usability, and practicality. This final refinement phase will address terminology inconsistencies, improve layout clarity, and supplement any missing examples or contextual applications. These adjustments will ensure the final product fully aligns with the ministry's operational needs and communication standards before official publication and distribution.

3.2.8 Dissemination and Implementation

Upon finalizing the product, the completed -Based Telecommunication Glossary is ready for distribution to its intended users, primarily translators, technical staff, and policymakers within the Ministry of Communication and Digital Affairs, Republic of Indonesia. This implementation stage ensures the glossary is actively utilized as a standardized translation aid in official documents, international communications, and policy frameworks. After thorough revisions and approvals, the finalized glossary, which available in both print and digital formats will be formally delivered to the Ministry. It is designed to serve as a

reliable reference tool, enhancing accuracy and efficiency in Indonesian-English telecommunication terms.

3.3 Schedule Planning

The research will be conducted within the Ministry of Communication and Digital Affairs and other relevant locations. The research is planned to take place over a period of five (5) months, from March to July 2025.

Table 3.4 Research Schedule

No.	Activity Type	Month				
		March	April	May	June	July
1.	Research and Data Collecting					
2.	Planning					
3.	Development of Preliminary Form of Product					
4.	Main Product Revision					
5.	Main Product Testing					
6.	Final Product Revision					
7.	Dissemination and Implementation					
8.	Making Final Project Report					

3.4 Budgeting

The Development of Glossary process led to the creation of a physical product. Therefore, the author had incurred various costs for both non-quantifiable costs such as internet usage and transportation during the development process, to quantifiable costs related to printing. The following is a detailed list of these costs:

Table 3.5 List of Budgetary Costs

No.	Type of Expense	Quantity	Unit Price	Total Price
1.	Printing	1 Book	IDR 100.000	IDR 100.000
2.	Design Service	1 Design Book with Revision	IDR 1.000,000	IDR 1.000,000
3.	Internet Usage	4 Months	IDR 50.000	IDR 200.000
4.	Transportation	4 Months	IDR 120.000	IDR 480.000
		Total Cost		IDR 1.780,000

This budget reflects the minimum expenditure necessary to produce a functional and presentable . The cost components were carefully managed to ensure quality without exceeding reasonable financial limits. Professional design services accounted for the largest portion of the budget, as visual presentation played a key role in the usability and readability of the final product.

3.5 Task Division

The development of the glossary three main section: radiocommunication, standardization and development. In the standardization section, the task of the glossary was to collect terms, definitions and examples in English and Indonesian from official documents of the International Telecommunications Union (ITU) and the Asian-Pacific Telecommunications Union (APT). This required accuracy,

clarity and compliance with international technical standards. At the same time, the editor checked all glossaries to identify and correct spelling errors, ensure correct spelling, and ensure that formatting conformed to national and international guidelines. These two roles work synergistically to ensure that the final version of the glossary complies not only with linguistic conventions, but also with global and regional lexical standards.

CHAPTER IV
RESULTS AND DISCUSSION

4.1 Results

The primary result presented in Chapter 4 was the creation of a for Telecommunication Glossary. This was developed with an emphasis on portability and user-friendliness, offering a practical tool for various users, including policy analysts, academics, and both technical and non-technical professionals. Its main objective was to support the understanding of technical terminology in the telecommunications sector. These terms frequently posed difficulties, particularly for those engaged in policy development, international negotiations, or regulatory functions within the communications and digital domains. The development process followed the research methodology proposed by Borg and Gall (1983).

The for Telecommunication Glossary consisted of 97 pages, which included introductory materials such as the front and back covers, acknowledgements, background information, and a table of contents, in addition to the core content. The main body was divided into three clearly defined sections: Radiocommunication, Standardization, and Development, covering a total of 225 technical terms. Particular attention was dedicated to the Standardization section due to its central relevance in international telecommunications discourse.

The Initial phase of the compilation process began with an existing glossary provided by the Ministry of Communication and Digital Affairs. Selected terms from this resource were reviewed and adapted for inclusion in the . To improve clarity and understanding, each entry included bilingual definitions and example sentences in both Indonesian and English. Visual elements such as illustrations and diagrams were also integrated to support comprehension of the material. Definitions were carefully sourced from authoritative references, including well-established online dictionaries, standardization documents issued by the ITU-T, and relevant Ministerial Regulations. Example sentences were drawn from official publications by international bodies such as the ITU, APT, IMSO, and ITSO. These examples were selected to reflect accurate

usage of terminology in formal, technical contexts, with a particular focus on the domain of standardization.

4.1.1 The Process of Creating Telemommunication Glossary

4.1.1.1 Research and Data Collecting

The concept of developing the for Telecommunications Glossary emerged from the observation that policy analysts and interns, particularly those without technical backgrounds, often struggled to comprehend the technical English found in translated materials and official documents. This lack of comprehension frequently resulted in misinterpretations, which in turn compromised the accuracy of the documents. Additionally, the existing glossary was only consulted during regulatory drafting or the formulation of ministerial decrees and was not readily available as a general reference. As a result, there was a clear need for a structured and easily accessible resource to enhance cross-disciplinary understanding in the telecommunications sector.

The for Telecommunications Glossary was structured Into three sections, with responsibility assigned for developing the Standardization section. Preliminary data collection was conducted to identify the needs of the Ministry of Communication and Digital Affairs for a tool that could aid policy analysts, professionals, and students in translating technical content. This data was gathered through semi-formal interviews using open-ended questions with policy analysts at the Ministry. The interviews were held on May 9 and 15, 2025, at the Ministry's headquarters. Discussions during these sessions centered on several key topics.

a. Interview Result with Policy Analysts with Non-Technical Background

   A follow-up interview was conducted with Minati Dwi Rahayu, a policy analyst with a non-technical background, on May 9, 2025, at the Ministry of Communication and Digital Affairs. During this session, she described her experiences translating technical policy documents from English into Indonesian and discussed the challenges encountered throughout the process.

Minati frequently participated in translation activities within the context of international cooperation. One of the main challenges she identified was the use of specialized terminology by various organizations, often tailored to their internal operational contexts. For instance, the International Telecommunication Union (ITU) regularly employed the term "universal and meaningful connectivity," which carried specific criteria that might not be relevant to other institutions. Another significant difficulty arose during the preparation of official texts, such as resolutions and joint statements, where differing interpretations of key terms could shape negotiation outcomes and influence Indonesia's diplomatic position. Therefore, understanding terminology required more than literal translation; it also demanded awareness of the broader context, including political and social sensitivities.

To achieve accurate and context-sensitive translations, Minati routinely consulted technical directorates with subject matter expertise. She also collaborated with other ministries, particularly the Ministry of Foreign Affairs, when translating sensitive terminology, especially in areas related to gender and complex social issues. Her primary reference materials included the ITU Standardization Glossary and a range of international documents.

Minati emphasized the need for innovative tools to support translation work. She noted that a glossary containing frequently used terms from international forums would enhance consistency and strengthen Indonesia's representation in global policy documents. In addition, such tools could reduce the likelihood of misinterpretations that might negatively impact diplomatic relations or national decision-making. Overall, the insights shared during the interview reinforced the importance and timeliness of resources like the for Telecommunication Glossary, particularly in closing the gap between technical and non-technical audiences. Such initiatives offered the potential to strengthen institutional capabilities in translating technical terms accurately and with cultural awareness, in line with evolving global standards.

b. Interview Result with Policy Analysts with Technical Background

An initial interview was conducted with Yusuf Hasan Akbar, a policy analyst with a technical background, on May 9, 2025, at the Ministry of Communication and Digital Affairs. During the discussion, he shared his experiences translating technical policy documents from English into Indonesian and elaborated on the challenges he faced throughout the process.

One notable experience involved the translation of the final document from the 2023 World Radiocommunication Conference (ITU-WRC23). This document was later adopted by the Ministry of Communication and Digital Affairs as the basis for a ministerial regulation, serving as an official reference for managing frequency spectrum in Indonesia. In practice, harmonization of frequency band usage among countries was essential to prevent interference. Therefore, translating the document required a high degree of precision, as even minor punctuation or interpretive errors had the potential to alter the intended meaning significantly.

A major challenge identified during the interview was the difficulty in transferring specialized knowledge from technical teams to sworn translators. Many telecommunications terms were highly specific and often not easily understood by those without technical expertise. Additionally, aligning interpretations of technical phrases or clauses proved time-consuming, particularly when contextual factors heavily influenced their meanings. To overcome these challenges and maintain translation accuracy, three main strategies were employed: involving technical units or experienced linguists to verify terminology, consulting the original source or reaching out to the publisher when uncertainties arose, and referring to established and authoritative sources.

When asked about the need for innovation in translation support tools, Yusuf emphasized that specialized resources would be highly beneficial, especially in speeding up what is often a slow and meticulous translation process. He also

pointed out that such tools could enhance the sector's ability to adapt more swiftly to the rapid pace of technological change.

Overall, the insights gained from the interview highlighted the pressing need for resources such as the for Telecommunication Glossary. Tools of this nature were seen as instrumental in bridging the gap between technical and non-technical stakeholders, promoting consistent and accurate understanding and translation of telecommunications terminology.

c. Interview Result with Head of Resources and Emerging Technologies Subdivision

The interview was conducted Sri Sunardi as the Head of the Resources and Emerging Technologies Subdivision. The interview took place on May 15, 2025, at the Ministry of Communication and Digital Affairs office. During the discussion, Sunardi offered a new perspective on translating technical policy documents from English into Indonesian and the challenges he encountered

The interview with Sri Sunardi, Head of the Resources and Emerging Technologies Subdivision at the Ministry of Communication and Digital Affairs, highlighted the significant challenges of translating technical documents. Sunardi explained that the lack of direct Indonesian equivalents for specialized terms and the complex structure of English phrases, such as dense noun-noun constructions, often lead to ambiguity and misinterpretation. To address this, he stressed the importance of collaboration between linguists and technical specialists, recommending the use of visual aids like diagrams to clarify complex concepts. Sunardi also advocated for a new approach to translation that includes using italicized English terms with footnotes when no accurate Indonesian equivalent exists.

The Ministry of Communication and Digital Affairs uses its own glossary to standardize translations of technical and official documents when drafting regulations or ministerial decrees. However, the existing glossary is not yet fully organized alphabetically. Currently, it is maintained in spreadsheet form and does not include definitions for the listed terms. Based on this, The research developed a glossary titled

for Telecommunications Glossary by using and adapting terms from the Ministry of Communication and Digital Affairs' existing glossary.

4.1.1.2 Planning

After conducting interviews with policy analysts from the Ministry of Communication and Digital Affairs of the Republic of Indonesia, the for Telecommunication Glossary was developed as a bilingual reference in English and Indonesian. It provides clear definitions to help readers more easily understand technical terms, along with examples of how the terms are used in technical and official documents.

The development of this product took approximately two months and involved the services of a professional book designer. This collaboration helped to ensure the would have a professional appearance and be visually engaging with illustrations related to telecommunications. Collaborating with a designer also enabled to focus more on content development while remaining actively involved in the layout and overall design process.

The design process was extensive, involving ongoing discussions with team members and the academic supervisor about appropriate media and materials. The design underwent several stages of validation and feedback, including input from the supervisor and relevant institutions. Additionally, the positive feedback from users was obtained to assess the product's feasibility and usability. This feedback was essential to ensuring that the would effectively support users in translating technical and official documents.

The 's design was tailored to the chosen theme of telecommunications and aligned with the needs of its target audience, including policy analysts, students, and technical and non-technical professionals. The visual style was designed for readers aged 18 and older, focusing on clarity and informativeness rather than overly animated elements. The A5 size ensures that the content and illustrations are sufficiently visible and easy to read.

4.1.1.3 Development of Preliminary Form of Product

a. Material

After collecting the initial data, the glossary development process began by organizing standardization-related terms based on the glossary provided by the Ministry of Communication and Digital Affairs. The selected terms ranged from those less familiar to the general public to those widely recognized by technical experts. Google Docs was used to store the compiled list of terms, which enabled effective collaboration among contributors. This platform also allowed designers to access the content easily and convert it into visual components for the .

Working together with team members, a total of 225 terms were compiled and classified into three main sectors: Radiocommunication, Standardization, and Development. The Standardization section included 32 terms, arranged in alphabetical order. After completing the collection of terms, definitions were identified to ensure accuracy. These definitions were sourced from ITU-T regulations and documents published by the Asia-Pacific Telecommunity (APT).

Many of the definitions and examples in this glossary were drawn from ITU publications, such as ITU-T Recommendations and documents issued by the World Telecommunication Standardization Assembly (WTSA). Additionally, the glossary referenced APT documents, including APT Common Proposals (ACP), WTDC25, and MC48, to support the appropriate application of terms within relevant contexts. As the author, the definition of terms and the accuracy of equivalents were handled with great care, with the main focus placed on keywords from three areas: radiocommunications, standardization, and development. Each term was selected to help readers understand essential technical concepts. Accuracy was a top priority; therefore, each term was presented with exact English and Indonesian

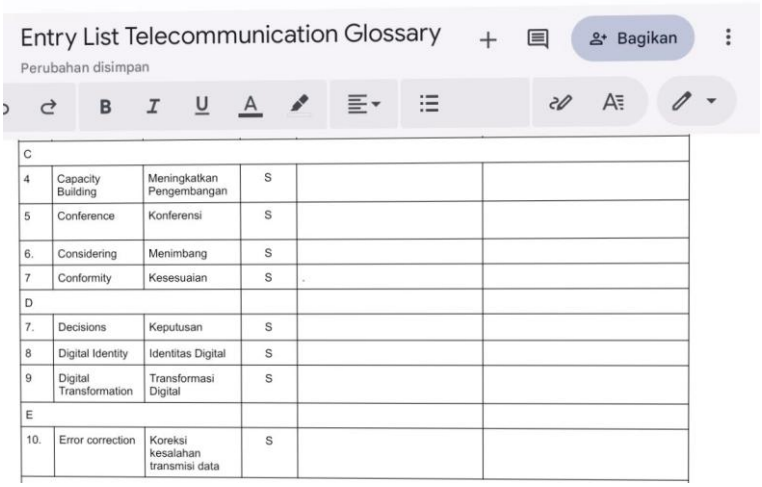
equivalents. The authors also ensured the reliability of the information by referring to trusted sources such as documents from the International Telecommunication Union (ITU). With this approach, the glossary served as a handy reference that was not only accurate but also consistent in its use of terms.

Table 4.1 List of Documents Used in the Glossary

No.	Document Title	Code	Publisher
1	Recommendation ITU-T A.8 – Alternative approval procedure	ITU-T A.8	ITU-T
2	Recommendation ITU-T I.113 – B-ISDN (Broadband Integrated Services Digital Network)	ITU-T I.113	ITU-T
3	World Telecommunication Development Conference	ITU-WTDC	ITU
4	APT Focal Points for Various ITU Conferences	MC48	APT
5	World Telecommunication Standardization Assembly	WTSA24	ITU-T
6	Decisions from MC-48 Meeting – 2025 Work Programme	APT WTDC25-2/INP-04	APT
7	Digital Identity Roadmap Guide	Roadmap Guide ITU	ITU
8	Recommendation ITU-R BT.2016 – Error correction, data framing, modulation, and emission methods for terrestrial multimedia broadcasting	BT.2016	ITU-R

9	CWG-FHR-20/18 – Ensuring the Return to the Normal Reporting Cycle for the 2024 Financial Statements	CWG-FHR-20/18	ITU
10	Recommendation ITU-T L.1031 – Hazardous waste	ITU-T L.1031	ITU-T
11	CWG-FHR-20/27 – Efficient and effective approach to implementing the new ITU headquarters building project	CWG-FHR-20/27	ITU
12	Internet of Things Global Standards Initiative (IoT-GSI)	IoT-GSI	ITU-T
13	Statistics on Internet Usage in Least Developed Countries (LDCs)	Facts-Figures-LDC	ITU
14	Recommendation ITU-R BT.419 – Directivity and polarization discrimination of antennas in television broadcasting	BT.419	ITU-R
15	Minutes of the ITU Plenipotentiary Conference Plenary Meetings	tind.itu	ITU
16	WTDC25-2/INP-06 – Issue paper on developing APT Common Proposals (ACPs)	WTDC25-2/INP-06	APT
17	New Resolution on Enhancing Next-Generation Engagement in ITU-T Standardization Activities	ITU WTSA-24	ITU-T

18	Standardization Work of ITU-T Study Groups (SGs)	ITU-T/Pages/	ITU-T
19	ITU-T Documents on SIDS, Security Standards, Telecommunication, Universal Access	ITU-T	ITU-T
20	Recommendation ITU-T Y.4903 (03/2022) – Definition of open data	ITU-T Y.4903	ITU-T
21	Recommendation ITU-T Y.1541 – Data structures and buffers (queues)	ITU-T Y.1541	ITU-T
22	Resolution 105 – Promoting and strengthening metaverse standardization	Resolution 105	ITU
23	Recommendation ITU-T E.800 (09/2008) – Definitions of terms related to quality of service, including zero-rating	ITU-T E.800	ITU-T
24	Recommendation ITU-T D.1040 (2020) – Optimizing terrestrial cable utilization across multiple countries	ITU-T D.1040	ITU-T



C					
4	Capacity Building	Meningkatkan Pengembangan	S		
5	Conference	Konferensi	S		
6.	Considering	Menimbang	S		
7	Conformity	Kesesuaian	S		
D					
7.	Decisions	Keputusan	S		
8	Digital Identity	Identitas Digital	S		
9	Digital Transformation	Transformasi Digital	S		
E					
10.	Error correction	Koreksi kesalahan transmisi data	S		

Figure 4.1 Entry List of Telecommunication Terms

7.	Decisions	Keputusan	S	Decisions are the outcomes of choosing one option among several alternatives. Keputusan adalah hasil dari memilih satu pilihan di antara beberapa alternatif.	**Decisions** :MC-48 approved the Work Programme for 2025 which includes holding of following meetings **Keputusan** : MC-48 menyetujui Program Kerja untuk tahun 2025 yang mencakup penyelenggaraan pertemuan-pertemuan berikut Source :APT WTDC25-2/INP-04
8	Digital Identity	Identitas Digital	S	A digital identity is the online or electronic representation of an individual, organization, or device. Identitas digital adalah representasi elektronik atau daring dari individu, organisasi, atau perangkat	The **Digital Identity** Roadmap Guide is a comprehensive set of guidelines for identifying the main aspects that need to be addressed during the design, development and implementation of a National Digital Identity Framework. Panduan Peta Jalan **Identitas Digital** adalah seperangkat panduan komprehensif untuk mengidentifikasi aspek-aspek utama yang perlu ditangani selama desain, pengembangan, dan implementasi Kerangka Kerja Identitas Digital Nasional. Source Roadmad Guide ITU
9	Digital Transformation	Transformasi Digital	S	Digital Transformation is the process of changing business or activities by using digital technologies to improve	ITU's Development Sector: Driving **digital transformation** worldwide. Sektor Pengembangan ITU:

Figure 4.2 Definition and Example of Telecommunication Terms

b. Media

Collaboration with a professional designer was strengthened to develop visual representations for the for Telecommunication Glossary product. Once all the terms, definitions, and example sentences—along with their respective sources—were compiled, the content was submitted to the designer to begin the layout and design process. This decision was made in

response to input from previous interviewees who highlighted the importance of having a resource that was not only content-rich but also professionally designed and easy to use.

Active involvement was maintained throughout the design phase by reviewing progress and offering feedback. This included selecting visuals that reflected the theme of telecommunications, organizing the layout structure, choosing suitable fonts, and incorporating illustrations to enhance comprehension of the terms. The selected design style emphasized clarity and professionalism, deliberately avoiding excessive animated features to ensure the focus remained on the content.

The for Telecommunication Glossary served not only as a conventional reference guide but also as a dependable translation tool recognized for its accuracy. Its primary objective was to bridge gaps in technical understanding—particularly within the radiocommunication domain—and to enhance the quality and reliability of technical and official document translation processes.

1. Front Cover

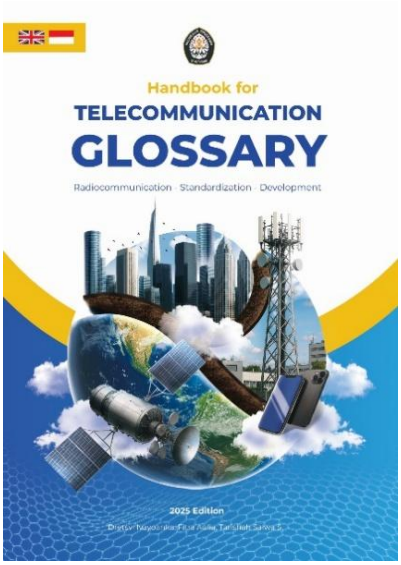


Figure 4.3 Front Cover of

The front cover of the " for Telecommunication Glossary" was carefully crafted to visually convey the book's essence and structure, ensuring it was easy for even a general audience to read and understand. Typography played a key role; all text on the cover used the Montserrat typeface, specifically in Light, Semi Bold, and Extra Bold weights, to create a clear and engaging visual hierarchy.

In the top left corner, both the British and Indonesian flags were prominently featured. This served as a clear signal that the book was bilingual, presenting its content in two languages. The Diponegoro University logo, placed centrally at the top, not only identified the project as a student work from the university but also showed its compliance with the university's official branding guidelines.

The text elements on the cover were designed to deliver crucial information effectively. The phrase " for" appeared in yellow and with a smaller font size. The yellow color was chosen to give a warm and inviting feel, while its smaller size kept it from overshadowing the main title. The book's core subject, telecommunications, was clearly highlighted by the bold title, "Telecommunication Glossary." Below this, "Radiocommunication, Standardization, Development" was listed, explicitly naming the three main areas covered in the and mirroring the glossary's internal organization. Additionally, "2025 Edition" was included to specify the publication year, and the names of the contributors were placed at the bottom, acknowledging their work in compiling the glossary.

To boost visual appeal and grab readers' attention, a detailed central illustration was incorporated. This image acted as a visual summary of the 's entire content. It was a circular diagram split into three sections, each representing a key telecommunications sector. One section showed a satellite orbiting Earth with clouds, symbolizing the

radiocommunication sector, which includes space-based communication. Another segment featured a network transmitter and a mobile phone, clearly pointing to the glossary's focus on the standardization sector, covering terrestrial communication infrastructure and devices. Finally, the last section depicted tall skyscrapers, representing the telecommunications development sector, linked to urbanization and infrastructure advancements.

Overall, the thoughtful combination of structured typography, informative text, and richly symbolic illustration made the 's front cover both aesthetically pleasing and an effective visual guide. This design cohesively communicated the identity, scope, and purpose of the " for Telecommunication Glossary" to a broad audience in a way that was easy to grasp and comprehensive, truly reflecting the detailed and relevant content inside.

2. Back Cover

Figure 4.4 Back Cover of

A synopsis, which provides a general overview of the contents, is an integral component of most books. The for Telecommunication Glossary is no exception. This continues to utilize the primary typeface, Montserrat. The cover includes the title of the book, a synopsis, and an engaging illustration. The color scheme is kept as clean as possible to ensure minimal distraction on the synopsis itself.

The synopsis commences with an exposition of the underlying main objective for the for Telecommunication Glossary's development. The objective of this compendium is to furnish a bilingual terminology reference that is precise, standardized, and user-friendly in the context of translating technical documents in the main three sectors: The subject of this investigation is radiocommunication, standardization, and development.

The subsequent paragraph delineates the contents of the book, which encompass a comprehensive collection of terms accompanied by their definitions, language equivalents, sources, and usage examples. These are presented in a systematic manner and supported by additional features such as a professional visual design, clean layout, consistent and readable font, and graphic elements that enhance understanding of technical concepts. The final paragraph outlines the potential applications of the . It has been developed for two main purposes: first, to function as a translation aid for government institutions, and second, to serve as an academic and professional reference. Second, to ensure consistency in terminology across various English and Indonesian documents related to telecommunication.

3. Color Pallete

Figure 4.5 Color Pallete of

A color palette of blue and yellow hues was chosen to symbolize the telecommunications sector. These specific colors were intentionally selected to align with the visual identity of the Indonesian Ministry of Communication and Digital Affairs, the governmental body responsible for radiocommunication policy. The blue tones were utilized to evoke a sense of modernity, innovative foresight, and dependability, which in turn bolstered the ’s perceived credibility and authoritative voice. Conversely, the yellow elements introduced a lively, dynamic quality that drew attention and created a sharp visual contrast with the dominant blue. This particular color scheme not only improved the overall aesthetic but also aided in effectively conveying the ’s objective and subject matter.

The chosen color palette, which incorporated various shades of blue and yellow, was used to represent the field of telecommunication. This selection reflected the identity of the Indonesian, the Ministry of Communication and Digital Affairs. The blue tones communicated modernity, a futuristic outlook, and reliability, thereby establishing the book’s authority and trustworthiness. Meanwhile, the yellow imparted a bright, energetic, and eye-catching quality, providing a strong visual counterpoint to the prevailing blue. This combination served to heighten the book’s visual attractiveness and facilitate the clear transmission of its message.

4. Font

Figure 4.6 Monserrat as Main font in Design Layout

The for Telecommunication Glossary uses Montserrat as its main font of . This choice was made based on considerations of readability and professional visual appearance. Montserrat is a clean, modern, and highly legible sans-serif font. It is well-suited for use in technical documents and formal publications. Montserrat's bold yet aesthetically pleasing letterforms make it clear that the book is both rich in content and presented with a visually appealing and accessible design for a wide range of readers.

5. Layout

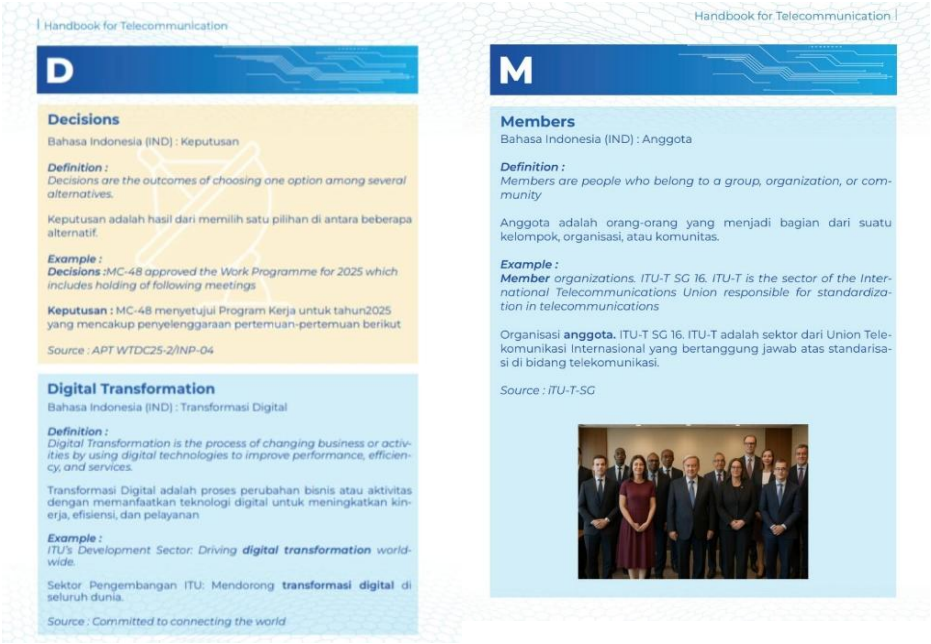


Figure 4.7 Main Content of Layout

The for Telecommunication Glossary's visual design is developed with a focus on readability, consistency, and professionalism. The layout is characterized by its clean, well-structured design, which is responsive to user needs across both print and digital formats. The elements of design, such as color usage, typography choices, and information organization systems, are meticulously selected to facilitate users' facile differentiation between terms, definitions, usage examples, and reference sources. The background colors are strategically varied to group information effectively, while the incorporation of initial-letter icons serves to reinforce alphabetical navigation throughout the glossary. This design approach enhances the visual appeal and serves as a functional guide that enables readers to comprehend content more quickly and efficiently.

The layout of glossary pages, for example, the entry for "Decisions," a clearly and systematic structure. The main term is printed in bold at the top of the page, followed immediately by its Indonesian equivalent. Definitions are presented in both English and Indonesian. The section containing example usage is designated with a unique label (Example) and is set apart by a softer background color, ensuring its immediate recognition without causing disruption to the reader. Reference sources are strategically placed at the bottom of the page in a smaller yet legible font, thereby underscoring the paramount importance of information validity. The strategic placement and separation of these elements are intended to enhance the user experience by facilitating expeditious access to terms and their technical contexts, a benefit that is particularly relevant for students, policy analysts, and professionals who require clarity in a limited timeframe.

The page layout for the term ‘Members’ integrated additional visual elements, including contextual illustrations, to support users in understanding the concept more effectively. These visuals helped clarify the meaning of ‘Members’ as individuals who belong to a specific group, organization, or community. In this case, the images visually represented members of international bodies such as ITU-T SG 16, which held responsibility for standardization activities in the telecommunications sector. The use of a soft blue background and a well-organized format enhanced the page’s readability, ensuring that the glossary remained both informative and user-friendly.

4.1.1.4 Preliminary Field Testing

The preliminary field testing was conducted by involving two validators, one from the Ministry of Communication and Digital Affairs and another from the Applied Foreign Language Program at Diponegoro University. They evaluated both the material

and media aspects of The Telecommunication Glossary using a validation sheet. The results showed that the product was feasible but required several revisions. The suggestions included improving Indonesian translations, adding updated terminologies, refining the standardization section, correcting typographical errors, and adjusting the layout and placement of supporting elements. These revisions were then applied to improve the product before proceeding to the main field testing.

4.1.1.5 Main Field Testing

The main field testing was carried out by involving two validators, namely Sri Sunardi, an expert from the Ministry of Communication and Digital Affairs, and Windy Harsiwi, a lecturer from the Applied Foreign Language Program at Diponegoro University. The validation process used the Validation Form, which was divided into two parts: material validation and media validation.

For material validation, Sri Sunardi assessed several aspects, including the accuracy of definitions, the appropriateness of terms, the clarity of language, and the relevance of the glossary as a translation aid. The results showed that most items were marked as “Agree” and “Strongly Agree,” which indicated that the glossary material was considered feasible. However, he also provided several suggestions for improvement, such as rechecked the meaning of terms in Indonesian, added more updated terminologies (e.g., Land Mobile Station, Artificial Intelligence, Cyber Drone), and enriched the standardization section.

For media validation, Windy Harsiwi evaluated the design and visual aspects of the handbook, such as font size, layout, readability, consistency of format, and product feasibility. The results showed that the handbook was generally clear and visually supportive of its function. Suggestions included revising some elements, such as correcting typographical errors, placing authors’ biographies in the correct section, adjusting image placement, and ensuring uniformity in symbols and references.

Based on the results of both validations, the Telecommunication Glossary was declared feasible to be tested with revisions. The revisions mainly concerned technical improvements in terms of content accuracy and visual presentation.

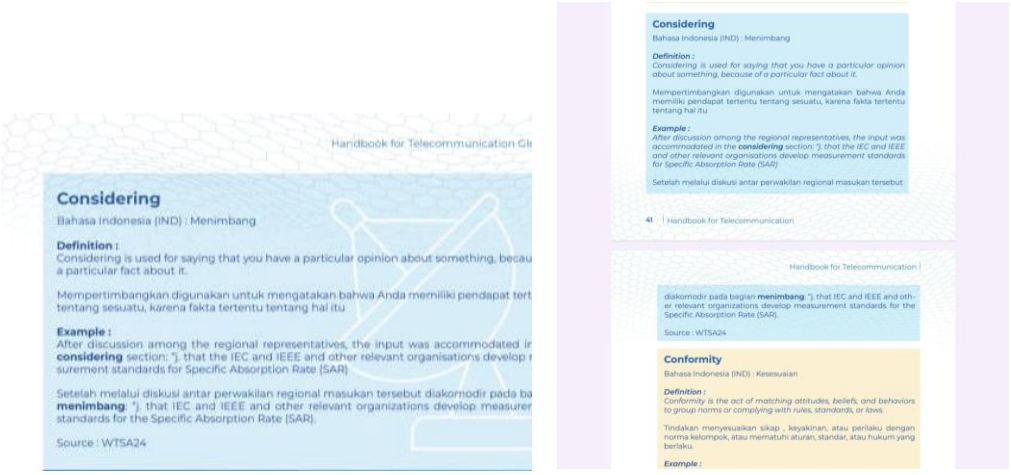


Figure 4.8 Sample of Font Size Before and After Validation

Figure 4.9 Sample of Images Before Validation

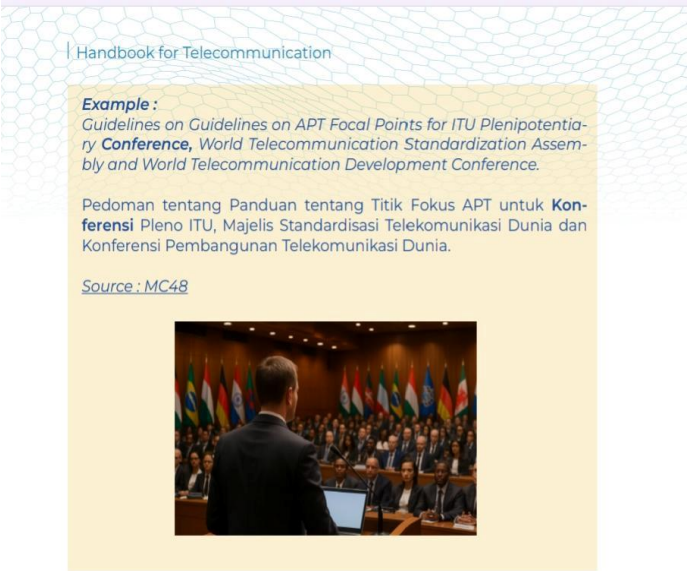


Figure 4.10 Sample of Images After Validation

4.1.1.6 Main Product Testing

After receiving and reviewing revisions from two different professionals, the was printed in A5 size. The printed copies went directly to the Head of the Resources and Emerging Technologies Subdivision for distribution to Policy Analysts and Student Interns at the Ministry of Communication and Digital Affairs. This handover was a crucial part of the main field-testing process, which aimed to get direct feedback from users on the 's content validity, design, and practical utility.

Following the distribution, users, including policy analysts and student interns at the Ministry of Communication and Digital Affairs, were asked to fill out a questionnaire via Google Form. The selected respondents were the Head of the Resources and Emerging Technologies Subdivision, Policy Analysts, Technical Policy Analysts, Cooperation Document Staff, and Student Interns. They were chosen because the was developed as a translation aid for both technical and official documents, which

usually demand a high degree of consistency. Their feedback is expected to contribute to the 's ongoing research and development

Table 4.2 List of Respondents

Company	Division	Occupation	Number of Respondents
Ministry of Communication and Digital Republic of Indonesia	Centre for International Affairs	Head of Resources and Emerging Technologies Subdivision	1
		Policy Analysts	5
		Technical Policy Analysts	2
		Cooperation	2
		Materials Staff	1
		Administrative Staff	
		Student Intern	3
Total Respondents			14

To measure the ’s effectiveness, a Likert scale was used with four response

The questionnaire data from the field testing revealed overwhelmingly positive responses across all evaluation areas. Every statement garnered an average score exceeding 3.5, categorizing each item as “Strongly Agree.” This outcome indicates that users perceived the glossary as highly relevant, practical, and well-designed. The average scores from the 20 statement items were as follows:

Table 4.3 Table of Respondents Interval

No	Statements	Average	Interval
Q1.	This glossary is relevant to the field of telecommunication, particularly in the sectors of Radiocommunication, Standardization, and Development	3.71	Strongly Agree
Q2.	The selected terms in this glossary match the translation needs within the Ministry	3.64	Strongly Agree
Q3.	This glossary adheres to terminology standards recognized at the national and international levels	3.64	Strongly Agree
Q4.	This glossary's definitions are written in clear and understandable language for both general users and professionals	3.57	Strongly Agree
Q5.	The definitions are accurate and align with the actual meaning of the terms in the context of telecommunication, particularly in radiocommunication, standardization, and development	3.71	Strongly Agree
Q6.	This glossary provides equivalent terms in both English and Indonesian in a consistent and balanced manner	3.57	Strongly Agree
Q7.	The Indonesian translations are appropriate and contextually accurate for technical and official documents	3.64	Strongly Agree
Q8.	The language used in this glossary is effective and efficient for translation purposes	3.57	Strongly Agree

Q9.	The terminology and definitions are consistently written and follow international terminology writing conventions	3.92	Strongly Agree
Q10.	This glossary successfully avoids potential meaning errors caused by unclear or ambiguous terms	3.71	Strongly Agree
Q11.	The glossary's design is suitable for official or institutional use	3.71	Strongly Agree
Q12.	The layout of the elements in this glossary makes the content easy to read and understand	3.64	Strongly Agree
Q13.	The color choices in this glossary are clear, comfortable for the eyes, and not distracting to readers	3.79	Strongly Agree
Q14.	The font type and text size in this glossary make it easy to read and remain consistent throughout the pages	3.64	Strongly Agree
Q15.	This glossary's appearance is effective and comfortable to read in both digital and printed formats	3.71	Strongly Agree
Q16.	The glossary's images and symbols definitively clarify the technical terms.	3.64	Strongly Agree
Q17.	The cover of the glossary represents the content and identity of the product well	3.71	Strongly Agree
Q18	The glossary's compact and portable size and format make it suitable for printing	3.64	Strongly Agree

Q19.	The glossary's design and layout make it a reliable professional reference in the telecommunications field	3.64	Strongly Agree
Q20.	This glossary is a media product that is feasible to use and distribute to relevant institutions or stakeholders	3.92	Strongly Agree

The final items in Q9 and Q20 achieved the highest average total score of 3.92. This reflected an overarching perception that the product was not just functional but also ready for official adoption within institutions. Specifically, the high score in Q9, which focused on adherence to international terminology conventions, indicated that users trusted the glossary as a reliable reference aligning with global standards.

Statements concerning terminology accuracy and translation effectiveness (Statements 2, 5, 7, 8, and 10) consistently scored above 3.5. This confirmed that the content effectively met the practical translation needs of government staff dealing with official and technical documents.

Furthermore, the visual and design aspects, covered in Statements 12 to 17, also received high ratings. Users particularly appreciated the clarity of the layout, readability of the font, and the relevance of the cover images. These positive responses highlighted the successful collaboration between content creators and graphic designers in producing a visually appealing and professional product. Significantly, no item received ratings in the “Agree” or “Disagree” range, which underscored consistently high levels of user satisfaction across all evaluation criteria.

4.1.1.7 Final Product Revision

Based on the validation sheet presented in Appendix 3 of the for Telecommunication Glossary, several important findings and recommendations were identified. The evaluation of material relevance, clarity of language, and accuracy of terminology revealed that most indicators received ratings of ‘Strongly Agree’ and ‘Agree,’ suggesting that the overall content met acceptable scientific and linguistic

standards. Nonetheless, several improvements were recommended, particularly within the glossary section. Experts emphasized the need to reassess specific terms such as ‘AI’ (Artificial Intelligence), as well as to include additional terms like ‘Conformity,’ supported by clear definitions, contextual examples, and references to internationally recognized sources. The term ‘Conformity’ was defined as the act of aligning attitudes, beliefs, or behaviors with group norms, or complying with established rules, standards, or laws. To demonstrate its application, an international example was included: Conformity with international standards is crucial for ensuring product safety and global market access.

Figure 4.11 Sample of Conformity After Feedback User

4.1.1.8 Dissemination and Implementation

For dissemination, the final glossary was designated for official submission to the Ministry of Communication and Digital Affairs of the Republic of Indonesia. The glossary directly supported the ministry’s needs in handling bilingual terminology within regulatory documents, technical reports, and international correspondence. To maximize accessibility, the product was not only distributed to translators, technical experts, and policymakers within the ministry but also archived in the official library of the Ministry of Communication and Digital Affairs. This ensured that both professionals and students could access a reliable bilingual reference source. In this

way, the glossary contributed to institutional knowledge management and provided a sustainable reference tool for future use.

The Telecommunication Glossary was finalized and officially registered for copyright protection through the Directorate General of Intellectual Property website. The copyright certificate legally confirmed the glossary as an original and protected written work, securing its ownership rights and ensuring that its use, duplication, and further development were covered under copyright law.

4.2 Discussion

The development of the for Telecommunication Glossary was grounded in Peter Newmark's theory of Technical Translation, which emphasized the significance of specialized terminology in technical texts. Although such terms typically made up only about 5–10% of the overall content, they played a critical role that required precise and contextually accurate translation. This necessity became especially evident in the Standardization sector, where a single sentence often included multiple technical terms. Accurate translation from English to Indonesian was therefore essential to preserve both the intended meaning and the technical context. Newmark also highlighted the importance of recognizing and consistently translating common terms. Accordingly, the glossary compiled in the was aligned with the institutional style of the target organization, particularly for technical reports and policy documents. To ensure terminological accuracy and contextual relevance—especially in Standardization-related texts—several official sources were referenced, including the International Telecommunication Union (ITU) and the Asia-Pacific Telecommunity (APT). These sources enabled the glossary to serve not only as a bilingual reference but also as a contextual translation tool for professionals involved in high-level policy and regulatory work.

In addition to Newmark's framework, the development process was supported by the concept of Glossography, introduced by Tarp and Gouws in the field of applied lexicography. This theoretical approach involved the careful selection of terminology

and its presentation in a structured, user-friendly format. It directly informed the ’s design, particularly within the Standardization domain, where terms were systematically collected, defined, and categorized—focusing on those used in radiocommunication and regulatory practices. The process began with research and data collection. Interviews with policy analysts revealed ongoing difficulties in translating Standardization-related content, especially among those without technical backgrounds. This highlighted the urgent need for a reference tool that could strike a balance between technical precision and linguistic clarity. The necessity of a glossary that could facilitate understanding and communication between technical and non-technical users became increasingly apparent.

During the planning phase, a bilingual was designed to offer not only accurate definitions but also real-world usage examples derived from authentic technical and regulatory documents. Collaboration with a professional designer ensured that the final product was visually accessible and well-organized, catering to users such as policy analysts, interns, and communication professionals working in digital policy and Standardization contexts. In the product development phase, terms were carefully curated and categorized, with particular emphasis on the Standardization section. Definitions were drawn from trusted sources like ITU-T and translated into both English and Indonesian. Real-world sentence examples were included to demonstrate proper contextual use of the terms, in line with Newmark’s focus on meaning-sensitive translation. Visual elements and illustrations were incorporated to further clarify abstract or highly technical concepts.

In the validation phase, both the content and design were reviewed by subject matter experts and academic supervisors. Their feedback led to refinements in formatting, accuracy, and readability. Minor revisions were made, including adjustments to punctuation, typography, illustration layouts, and the italicization of English technical terms—adhering to best practices in technical translation and Standardization. Field testing was conducted with actual users, including policy analysts, technical staff, and interns at the Ministry of Communication and Digital

Affairs. Using a Likert scale–based evaluation, the received consistently high ratings across all categories, particularly in terms of clarity, practicality, and design. These results validated the ’s effectiveness as a translation support tool, especially for technical standardization and regulatory drafting.

Based on this feedback, final revisions were made to ensure consistent formatting and user-friendliness. The finalized version of the was then submitted for copyright registration and distributed to the Ministry’s internal library, making it accessible for both current and future use. By incorporating theoretical frameworks, expert validation, and a strong focus on the Standardization sector, the for Telecommunication Glossary emerged as a practical and authoritative resource to improve translation quality, ensure consistency, and support effective policy communication in the telecommunications domain. Moreover, this research supported and extended previous studies (Rohani & Suyono, 2021; Maculan et al., 2023; Widianti et al., 2024) by providing a specialized bilingual glossary in the telecommunications sector. While earlier works focused on mobile applications, conceptual terminology systems, or slang dictionaries, this study specifically addressed technical terminology in telecommunications and introduced a handbook-based format. Thus, it not only confirmed the importance of glossary development for linguistic and professional purposes but also filled a gap in sector-specific, bilingual, and contextually rich reference materials.

CHAPTER V
CONCLUSION AND SUGGESTION

5.1 Conclusion

The data collected through interviews with ministry personnel and subject matter experts, along with the outcomes of the primary field trial, indicated a strong need for a standardized bilingual tool to minimize ambiguity and inconsistency in official translations. The glossary was deemed both practical and advantageous, as reflected by its highest average rating of 3.92 for the statement, “This glossary is a media product that is feasible to use and distribute to relevant institutions or stakeholders.” This affirmed that the glossary was not only operationally effective but also suitable for institutional implementation.

The study revealed that a glossary in format needed to be grounded in authentic documents utilized by the ministry, validated by experts, and supported by reputable international sources such as International Telecommunication Union (ITU-T SG16) and Asia-Pasific Telecommunity . The terminology was meticulously chosen and organized in a manner that was accessible to users, incorporating bilingual entries, definitions, contextual examples, and visual aids. This format closely matched the actual translation needs of ministry staff, particularly policy analysts and interns, ensuring its applicability and user-friendliness. High evaluation scores for terminology precision and translation performance (each exceeding 3.5) confirmed the glossary’s relevance to real-world demands. Furthermore, the research concluded that the functioned as a centralized reference tool that contributed to the standardization of terminology usage across different departments. It directly responded to prior concerns about inconsistent translations in both inter-ministerial and international contexts. By providing clear and consistent terminology, the glossary supported both translators and non-specialist users in producing more accurate and cohesive documents. Its effectiveness in professional settings, as demonstrated during the main field test, validated its potential to enhance institutional translation practices

5.2 Suggestion

Future research could be expanded in several directions. First, researchers may develop The Telecommunication Glossary further by including new thematic areas relevant to the Ministry of Communication and Digital Affairs, such as digital transformation, cybersecurity, and broadcasting. Second, the glossary could be integrated with AI-based translation systems and terminology management platforms, enabling more efficient use in professional translation and documentation processes. Third, future studies may investigate user experience across different formats—including print, mobile applications, and web-based databases—to identify the most effective medium for diverse users. Lastly, the same research model could be adapted to other governmental and technical sectors that require accurate bilingual terminology, thereby contributing to the advancement of applied linguistics and strengthening translation practices in the public sector.

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Undang-Undang Republik Indonesia Nomor 39 Tahun 1999

APPENDICES

Appendix 1 Research Permit for Data Collection

KEMENTERIAN PENDIDIKAN TINGGI, SAINS, DAN TEKNOLOGI
UNIVERSITAS DIPONEGORO
SEKOLAH VOKASI

Jalan Gubernur Mochtar
Kampus Universitas Diponegoro
Tembalang, Semarang, Kode Pos 50275
Telepon/Faksimile (024) 7471379
Laman: www.vokasi.undip.ac.id
Pos-el: vokasi[at]undip.ac.id

No : 358/UN7.M2.1/KM/VII/2025
Lampiran : -
Hal : Surat Permohonan Izin Penelitian

Semarang, 25 Juli 2025

Yth. Kepala Pusat Kelembagaan Internasional Kementerian Komunikasi dan Digital Republik Indonesia
Kementerian Komunikasi dan Digital Republik Indonesia
Jl. Medan Merdeka Barat No.9 2, Rt.2/rw.3, Gambir, Kecamatan Gambir, Kota Jakarta Pusat, Daerah Khusus Ibukota Jakarta 10110

Dalam rangka mempersiapkan mahasiswa untuk menyelesaikan studinya, bagi setiap mahasiswa diwajibkan membuat tugas akhir.
Sehubungan dengan hal tersebut di atas diperlukan penelitian untuk memperoleh data, baik dari Instansi Pemerintah maupun Swasta.
Mohon sekiranya dapat diberikan izin bagi mahasiswa S.Tr. Bahasa Asing Terapan Fakultas Sekolah Vokasi Universitas Diponegoro untuk dapat melaksanakan penelitian dan mengumpulkan data di Kementerian Komunikasi dan Digital Republik Indonesia.

Adapun nama dan data mahasiswa sebagai berikut:

Nama	: Fitra Aulia
NIM	: 40020521650078
Alamat Rumah	:
Jurusan	: S.Tr. Bahasa Asing Terapan
Judul TA	: Creating A Handbook-based Telecommunication Standardization Glossary As A Translation Aid For Ministry Of Communication And Digital Affairs Republic Of Indonesia

Atas perhatian dan kerjasama yang baik kami sampaikan terimakasih.

a.n. Dekan,
Wakil Dekan I

Dr. Ida Hayu Dwimawanti, M.M.
NIP. 196708191994032003

Tembusan : Yth.
1. Dekan Sekolah Vokasi
2. Kaprodi S.Tr. Bahasa Asing Terapan
3. Kasubbag Sumber Daya Dan Teknologi Kementerian Komunikasi Dan Digital Republik Indonesia

Appendix 2 Original Interview Results

Interviewee: Yusuf Akbar Hasan

Position: Technical Policy Analyst

Date: Friday, May 9th 2025

No.	Daftar Pertanyaan Wawancara	Jawaban
1.	Bisa diceritakan pengalaman Anda saat menerjemahkan istilah teknis dalam dokumen-dokumen internasional di bidang Radiokomunikasi atau standarisasi atau pengembangan?	Pengalaman yang pernah di alami yaitu penerjemahan naskah final x radio conference 2023. Yang dimana naskah tersebut merupakan hasil dari pertemeuan sedunia yang menentukan arah frekuensi radiotelekomunikasi di dunia. Sebagai contoh penggunaan frekuensi berapa dan rentan berapa menjadi layanan seperti apa perlu di harmonisasikan di setiap negara supaya tidak terjadi interfensi. Pengalaman pak akbar menerjemahkan dalam istilah teknis terdapat tantangan yang muncul dan darisitu kita memperhatikan 2 hal yaitu memerlukan waktu yang Panjang untuk menyamakan persepsi antara siapa yang terlibat dalam proses penerjemahan itu. Kedua, dalam penerjemahan sedkit perbedaan diski maupun penulisan ataupun tanda baca akan membawa perbedaan cukup jauh maknanya dalam penerjemahan. Sehingga perlu hati-hati dalam menerjemahkan nasah-naskah tersebut.
2.	Dalam pekerjaan, tantangan apa yang paling sering Anda hadapi saat memahami atau menyampaikan istilah asing yang berkaitan dengan radiokomunikasi atau standarisasi atau pengembangan?	Kita perlu transfer knowlage penerjemahan itu karena kita menerjemahkan ini menggunakan penerjemahan tersumpah (professional di bidang penerjemahan) sehingga nama-nama eksklusif yang hanya di bidang telekomunikasi. 2. Interpretasi,

		terkadang memerlukan waktu untuk menyamakan persepsi yang dimana ada yang perlu menginterpretasikan suatu klausa atau frase, dari teknis seperti apa, dan di dalam naskah seperti apa.
3.	Bagaimana cara Anda biasanya memastikan akurasi saat menerjemahkan istilah atau konsep yang sifatnya teknis atau khusus?	Pertama, Dalam proses akan melibatkan suatu kerja teknis yang hariannya menangani hal itu, saat direferensikan ke tulisan dan maksudnya tersampaikan baik berarti hal tersebut akurat. Kedua, memerlukan ahli-ahli teknis telekomunikasi. Ketiga, konsultasi ke naskah yang tersedia dan dirasa perlu diterjemahkan akan ditanyakan kepada yang mengeluarkan.
4.	Apakah Anda pernah mengalami kesulitan dengan istilah tertentu yang maknanya tidak langsung dapat dipahami? Bisa diceritakan?	Jadi kita perlu mencari frasa yang lebih dalam ketika ingin menerjemahkan sehingga tidak sembarang menerjemahkan word to word akan tetapi dipahami terlebih dahulu isi dari kalimat yang ingin diterjemahkan.
5.	Adakah sumber atau referensi seperti apa yang paling membantu Anda dalam memahami istilah teknis telekomunikasi atau standarisasi atau pengembangan saat bekerja?	Pertama, referensi yang paling simple kamus resmi seperti kbbi, oxford, wetern,dll. Kedua, naskah-naskah dituangkan dalam suatu pengaturan besar (regulation) dan di refer jika ada perubahan. Ketiga, melalui naskah itu sendiri terkadang definisinya akan hanya dimunculkan di naskah tersebut. Keempat, mengundang satuan kerja teknis dan bertanya. Kelima, menanyakan ke expert Bahasa dan radiokamunikasi. Terakhir, bertanya langsung kepada organisasi internasional seperti ITU.
6.	Menurut Anda, apakah perlu adanya kebutuhan atau inovasi untuk suatu bentuk	Jika ada media, akan mempermudah proses yang memakan waktu lebih lama. Dan akan membantu sektor komunikasi untuk lebih

	media atau alat bantu khusus dalam menerjemahkan istilah-istilah tersebut?	menarik dan membawa perubahan yang sangat cepat.

Interviewee: Minati Dwi Rahayu

Position: staff

Date: Friday, May 9th 2025

No.	Daftar Pertanyaan Wawancara	Jawaban
1.	Bisa diceritakan pengalaman Anda saat menerjemahkan istilah teknis dalam dokumen-dokumen internasional di bidang Radiokomunikasi atau standarisasi atau pengembangan?	Pengalaman pribadi saya, dalam kerja sama internasional ini, ada beberapa organisasi internasional yang terlibat. Meskipun topiknya sama, masing-masing organisasi ini kadang punya istilah yang lazim digunakan di lingkungan mereka sendiri. Misalnya, di ITU (International Telecommunication Union), ada istilah "universal and meaningful connectivity". Nah, istilah ini belum tentu umum digunakan di organisasi lain, dan pengertiannya pun harus disamakan. Misalnya, di ITU, universal itu punya kriteria dan indikator seperti apa begitupun meaningful connectivity. Tapi, belum tentu organisasi lain punya interpretasi yang sama terhadap istilah tersebut. Itu salah satu tantangannya karena istilah teknis yang digunakan bisa berbeda-beda tergantung pada organisasi internasionalnya. Selain itu, kalau konteksnya adalah istilah teknis yang memang bukan bidang kita secara langsung, kadang kita harus menerka-nerka maknanya. Misalnya, waktu itu dalam kajian standardisasi, muncul istilah "network sovereignization." Nah, istilah seperti itu

		cukup sulit dipahami kalau kita tidak benar-benar menguasai teknisnya
2.	Dalam pekerjaan, tantangan apa yang paling sering Anda hadapi saat memahami atau menyampaikan istilah asing yang berkaitan dengan radiokomunikasi atau standarisasi atau pengembangan?	Berkaitan dengan yang Pertama, terkadang di forum-forum internasional itu ada istilah-istilah yang mungkin sebelumnya belum pernah kita dengar, tapi ternyata di situ istilah tersebut sering digunakan, dan masing-masing pihak punya deskripsi atau definisinya sendiri-sendiri. Tantangannya juga muncul dari emerging technology atau teknologi yang sedang berkembang. Misalnya, baru saja kita membahas tentang istilah blockchain, eh tiba-tiba sekarang sudah ramai membahas AI governance. Perkembangannya sangat cepat, dan tiap teknologi punya komponen-komponen sendiri yang istilahnya juga mungkin butuh waktu bagi kita untuk benar-benar memahami maksudnya. Kadang istilahnya terlihat sederhana, misalnya seperti “safe and secure AI”. Tapi banyak yang mempertanyakan: “safe” itu maksudnya bagaimana? “Secure” itu seperti apa? Nah, di masing-masing negara bisa punya perspektif yang berbeda-beda. Bisa jadi, menurut kita, "safe" itu artinya selama AI tidak disalahgunakan, maka sudah dianggap aman. Tapi di negara lain, definisi "safe" bisa jauh lebih luas dari itu. Jadi, ketika kita sedang menyusun dokumen sidang atau resolusi, sering kali muncul perdebatan panjang hanya untuk membahas satu kata saja. Hal ini terjadi karena tiap negara atau organisasi punya sudut pandang

		dan penafsiran yang berbeda terhadap istilah tersebut.
3.	Bagaimana cara Anda biasanya memastikan akurasi saat menerjemahkan istilah atau konsep yang sifatnya teknis atau khusus?	Biasanya kalau kita menemui tantangan seperti itu, langkah pertama yang dilakukan adalah berkonsultasi dengan direktorat teknis yang lebih banyak terlibat langsung dalam isu-isu teknis tersebut. Mereka biasanya bisa memberikan masukan atau penjelasan terkait istilah tersebut. Setelah itu, kita juga bisa mencari masukan dari forum lain. Bahkan, isu-isu seperti ini tidak hanya ditangani oleh tim sumber daya saja, tapi juga berkembang ke berbagai pihak lainnya. Jadi, kita punya keleluasaan untuk berkonsultasi ke berbagai sumber. Misalnya, kita juga sering berkonsultasi dengan Kementerian Luar Negeri. Meskipun istilah yang dibahas bukan bersifat teknis, tapi sering kali berkaitan dengan isu-isu sensitif. Contohnya, berdasarkan pengalaman di salah satu forum ITU, pernah ada pembahasan tentang gender. Dalam dokumen awal, disebutkan bahwa gender adalah “man and woman.” Lalu, ada satu negara yang mengusulkan agar semua teks dalam resolusi yang menyebut “man and woman” diganti menjadi “people.” Bagi kita yang belum terbiasa dengan dinamika negosiasi seperti itu, mungkin hal tersebut terlihat sederhana dan tidak bermasalah karena mengganti dengan “people” terdengar lebih netral. Tapi ternyata, setelah kita konsultasikan dengan Kemlu, makna dari perubahan itu bisa jauh lebih

		dalam. Misalnya, itu bisa dilihat sebagai cara halus untuk menggeser definisi gender secara politis.
4.	Apakah Anda pernah mengalami kesulitan dengan istilah tertentu yang maknanya tidak langsung dapat dipahami? Bisa diceritakan?	Sama seperti yang sudah saya sampaikan sebelumnya, karena saya tidak memiliki latar belakang teknis, jadi untuk istilah-istilah teknis, saya masih harus bertanya terlebih dahulu ke direktorat terkait, itupun belum tentu juga mereka bisa paham dengan konteksnya, karena di Indonesia sendiri perkembangan diskusi teknologinya belum secepat di negara seperti China. Di China, mereka sudah membahas hal-hal seperti 6G, network sovereignization, quantum technology dan sebagainya. Selain itu, saya juga masih cukup awam dengan isu-isu sensitif, misalnya mengenai indigenous people. Secara harfiah mungkin bisa diterjemahkan sebagai "penduduk lokal," tetapi ternyata maknanya tidak sama dengan "local people".
5.	Adakah sumber atau referensi seperti apa yang paling membantu Anda dalam memahami istilah teknis telekomunikasi atau standarisasi atau pengembangan saat bekerja?	Kalau soal sumber atau referensi terkait istilah tertentu, biasanya berasal dari hasil diskusi dengan para stakeholder lain yang berkaitan dengan istilah tersebut. Kadang, di suatu forum mereka sudah memiliki glosarium tersendiri. Misalnya, di ITU (International Telecommunication Union), ada yang namanya ITU Standardization Glossary. Selain itu, referensi juga bisa berasal dari kajian-kajian yang mereka lakukan. Dari kajian tersebut, biasanya disertakan glosarium meskipun terkadang tidak lengkap. Tapi tetap cukup membantu dalam menyusun dokumen.

		Selain itu, kami juga mencari referensi dari internet, atau dengan membandingkan dokumen-dokumen lain. Misalnya, kalau dulu kita pernah membahas hal serupa di G20 Declaration, kita bisa merujuk ke sana. Dari situ, kita bisa melihat posisi Indonesia, apakah kita bisa menerima istilah atau konsep tersebut atau tidak. Jadi, rujukan-rujukan dari forum-forum atau perjanjian internasional yang pernah kita ikuti juga sangat membantu sebagai bahan pertimbangan.
6.	Menurut Anda, apakah perlu adanya kebutuhan atau inovasi untuk suatu bentuk media atau alat bantu khusus dalam menerjemahkan istilah-istilah tersebut?	Kalau ditanya apakah diperlukan atau tidak, tentu akan lebih baik jika ada. Cuma untuk konkretnya seperti apa belum berpikir sejauh itu. Misalnya mungkin dengan adanya bank data atau bank istilah atau Kumpulan-kumpulan istilah yang sering kita gunakan di forum-forum internasional cukup membantu untuk kontinuitas posisi Indonesia. Hal ini juga agar kita bisa tahu arah kebijakan atau direction-nya seperti apa, dan bagaimana redliness atau batas-batas penggunaan kata-kata tertentu yang perlu kita perhatikan. Jadi, kita bisa lebih berhati-hati dalam menggunakan istilah-istilah tersebut di dalam dokumen resmi.

Interviewee: Sri Sunardi

Position: Head of Sources and Emerging Technologies Subdivision

Date: Friday, May 14th 2025

No.	Daftar Pertanyaan Wawancara	Jawaban
1.	Bisa diceritakan pengalaman Anda saat menerjemahkan	Sebagian besar penerjemahan dilakukan dari Bahasa Indonesia ke Bahasa Inggris untuk

	istilah teknis dalam dokumen-dokumen internasional di bidang Radiokomunikasi atau standarisasi atau pengembangan?	kepentingan kerja sama internasional. Tujuannya adalah agar mitra asing, investor, dan forum global memahami kebijakan nasional Indonesia. Dalam konteks ini, istilah seperti 'power flux density' atau 'adjacent interference' menjadi tantangan.
2.	Dalam pekerjaan, tantangan apa yang paling sering Anda hadapi saat memahami atau menyampaikan istilah asing yang berkaitan dengan radiokomunikasi atau standarisasi atau pengembangan?	Tantangan utamanya mencakup perbedaan struktur kalimat dan istilah antar bahasa. Juga diperlukan pemahaman konteks mendalam agar istilah seperti 'Direktorat Penataan Spektrum' tidak diterjemahkan secara sempit. Ilustrasi atau diagram teknis sangat membantu.
3.	Bagaimana cara Anda biasanya memastikan akurasi saat menerjemahkan istilah atau konsep yang sifatnya teknis atau khusus?	Menggunakan glosarium teknis, kamus (KBBI, Oxford), dokumen dari ITU atau WTO, serta pendampingan penerjemah profesional dari Kemenlu atau Setneg. Hasil mesin terjemahan seperti Google Translate atau DeepL selalu dikoreksi manual.
4.	Apakah Anda pernah mengalami kesulitan dengan istilah tertentu yang maknanya tidak langsung dapat dipahami? Bisa diceritakan?	Ya, terutama dalam penyusunan MoU dan perjanjian internasional. Misalnya, pemilihan kata seperti 'shall' atau 'agreement' bisa terlalu mengikat, atau 'emerging group' vs. 'uprising group' yang mengandung muatan politis. Salah pemilihan istilah dapat mempengaruhi persepsi global terhadap Indonesia.
5.	Adakah sumber atau referensi seperti apa yang paling membantu Anda dalam memahami istilah teknis telekomunikasi atau standarisasi atau pengembangan saat bekerja?	Dokumen rujukan dari organisasi internasional, glosarium internal, serta kolaborasi dengan instansi lain yang terlibat dalam penyusunan kebijakan dan dokumen regulasi.
6.	Menurut Anda, apakah perlu adanya kebutuhan atau inovasi untuk suatu bentuk	Sangat perlu. Disarankan adanya glosarium nasional khusus sektor telekomunikasi dan

	media atau alat bantu khusus dalam menerjemahkan istilah-istilah tersebut?	hukum internasional yang sah dan digunakan lintas instansi serta forum internasional.

Appendix 3 Result Form Validation of Product

FORM OF VALIDATION OF PRODUCT

Creating a Handbook-based Telecommunication Glossary as a translation aid at Ministry of Communication and Digital Affairs Republik Indonesia

Validator: Windy Harsiwi, S.Pd., M.Int.Cul.

Date: Tuesday, June 1st 2025

Material Expert Validation

A. Filling Instructions:

1. Place a checkmark (□) in the provided column by selecting one of the five answer options:

SD: Strongly Disagree	**D**: Disagree	**N**: Neutral	**A**: Agree	**SA**: Strongly Agree

2. If your assessment is Strongly Disagree (SD), Disagree (D), or Neutral (N), please provide comments and suggestions for improvement
3. Place a checkmark (□) to select the conclusion based on the results of this material validation assessment.

B. List of Statement

No.	Statements	Rating Scale				
		SD	D	N	A	SA
	A. Material Relevance					
1.	Is the glossary relevant to the telecommunication field?					✓
2.	Are the selected terms suitable to the translation needs in the Ministry?				✓	
3.	Does the glossary meet national or international terminology standards?				✓	
4.	Are the definitions presented in clear and understandable language?					✓
5.	Are the definitions accurate according to the actual meaning of the terms in telecommunication?				✓	
6.	Is the number of terms sufficient to meet the Ministry's translation needs?			✓		
7.	Can the glossary serve as a reference for translating other telecommunication documents?			✓		
	B. Language Use					
8.	Does the glossary provide both English and Indonesian equivalents?					✓
9.	Are the translated terms in Indonesian appropriate in their usage context?			✓		
10.	Is the language used in the glossary effective and efficient?			✓		
11.	Are the terms consistently written according to International Standard Terminology writing rules?			✓		
12.	Does the glossary avoid potential meaning errors due to unclear or ambiguous terms?				✓	

C. Comments

D. Suggestions

LIST OF POSSIBLE ERRORS	SUGGESTIONS
source	Please write the source consistently. (with or without :)

E. Result

- ☐ The Telecommunication Glossary Handbook material is feasible to be tested.
- ☑ The Telecommunication Glossary Handbook material is feasible to be tested with revisions.
- ☐ The Telecommunication Glossary Handbook material is not feasible to be tested without revisions.

Semarang, June 1st 2025

Validator,

Windy Harsiwi, S.Pd., M.Int.Cul.

FORM OF VALIDATION OF PRODUCT

Creating a Handbook-based Telecommunication Glossary as a translation aid at Ministry of Communication and Digital Affairs Republik Indonesia

Validator: Sri Sunardi

Date: Tuesday, June 4th 2025

Material Expert Validation

A. Filling Instructions:

1. Place a checkmark (✓) in the provided column by selecting one of the five answer options:

SD: Strongly Disagree	**D**: Disagree	**N**: Neutral	**A**: Agree	**SA**: Strongly Agree

2. If your assessment is Strongly Disagree (SD), Disagree (D), or Neutral (N), please provide comments and suggestions for improvement
3. Place a checkmark (✓) to select the conclusion based on the results of this material validation assessment.

B. List of Statement

No.	Statements	Rating Scale				
		SD	D	N	A	SA
	A. Material Relevance					
1.	Is the glossary relevant to the telecommunication field?					✓
2.	Are the selected terms suitable to the translation needs in the Ministry?					✓
3.	Does the glossary meet national or international terminology standards?					✓
4.	Are the definitions presented in clear and understandable language?					✓
5.	Are the definitions accurate according to the actual meaning of the terms in telecommunication?					✓
6.	Is the number of terms sufficient to meet the Ministry's translation needs?					✓
7.	Can the glossary serve as a reference for translating other telecommunication documents?					✓
	B. Language Use					
8.	Does the glossary provide both English and Indonesian equivalents?				✓	
9.	Are the translated terms in Indonesian appropriate in their usage context?					✓
10.	Is the language used in the glossary effective and efficient?					✓
11.	Are the terms consistently written according to International Standard Terminology writing rules?					✓
12.	Does the glossary avoid potential meaning errors due to unclear or ambiguous terms?					✓

C. Comments

D. Suggestions

LIST OF POSSIBLE ERRORS	SUGGESTIONS
Terms	Please readjust the meaning of terms in Indonesia : ① R - Land Mobile Station ② S - Artificial Intelligence ③ D - Cyber Drill Please add more terms in Standardization Section : ① Conformity

E. Result

- ☐ The Telecommunication Glossary Handbook material is feasible to be tested.
- ☑ The Telecommunication Glossary Handbook material is feasible to be tested with revisions.
- ☐ The Telecommunication Glossary Handbook material is not feasible to be tested without revisions.

Jakarta, June 4th 2025

Validator,

Sri Sunardi

FORM OF VALIDATION OF PRODUCT

Creating a Handbook-based Telecommunication Glossary as a translation aid at Ministry of Communication and Digital Affairs Republik Indonesia

Validator: Windy Harsiwi, S.Pd., M.Int.Cul.

Date: Tuesday, June 1st 2025

Media Expert Validation

C. Filling Instructions:

1. Place a checkmark (□) in the provided column by selecting one of the five answer options:

SD: Strongly Disagree	**D**: Disagree	**N**: Neutral	**A**: Agree	**SA**: Strongly Agree

2. If your assessment is Strongly Disagree (SD), Disagree (D), or Neutral (N), please provide comments and suggestions for improvement
3. Place a checkmark (□) to select the conclusion based on the results of this material validation assessment.

D. List of Statement

No.	Statements	Rating Scale				
		SD	D	N	A	SA
	A. Design Visual					
1.	Does the design of the glossary suitable for official use?				✓	
2.	Does the layout of the elements in the glossary make it easy to read and understand?					✓
3.	Are the color choices in the glossary clear, comfortable for the eyes, and not distracting for readers?					✓
4.	Do the font type and text size make the glossary easy to read and remain consistent on every page?			✓		
5.	Is the appearance of the glossary effective and comfortable to read both in digital and printed formats?			✓		
6.	Do the images or symbols used in the glossary help clarify the technical terms explained?		✓			
7.	Does the glossary cover represent the content and identity of the product well?					✓
	B. Product Feasibility					
8.	Does the size and format of the handbook allow it to be printed in a easy-to-carry form?					✓
9.	Is this product easy to distribute digitally without requiring any additional special devices?			✓		
10.	Do both the PDF and printed versions of the glossary allow users to quickly and easily search for terms?				✓	
11.	Does the arrangement of terms allow for future development or additions?				✓	
12.	Is this product designed for continuous use and to remain relevant over time?				✓	

C. Comments

D. Suggestions

LIST OF POSSIBLE ERRORS	SUGGESTIONS
font size	please make the font size bigger
ribbon	dont use ribbon
italic	please make the English sentences in italic
image	not all the terms have image / symbols, please add some
authors	please write the biography of the authors in the end of the book
definition	please make the definition font size bigger / the same with the main word

E. Result

- □ The Telecommunication Glossary Handbook media is feasible for trial.
- ☑ The Telecommunication Glossary Handbook media is feasible for trial with revisions.
- □ The Telecommunication Glossary Handbook media is not feasible for trial without revisions.

Semarang, June 1st 2025

Validator,

Windy Harsiwi, S.Pd., M.Int.Cul.

FORM OF VALIDATION OF PRODUCT

Creating a Handbook-based Telecommunication Glossary as a translation aid at Ministry of Communication and Digital Affairs Republik Indonesia

Validator: Sri Sunardi

Date: Tuesday, June 1st 2025

Media Expert Validation

C. Filling Instructions:

1. Place a checkmark (✓) in the provided column by selecting one of the five answer options:

SD: Strongly Disagree	**D**: Disagree	**N**: Neutral	**A**: Agree	**SA**: Strongly Agree

2. If your assessment is Strongly Disagree (SD), Disagree (D), or Neutral (N), please provide comments and suggestions for improvement
3. Place a checkmark (✓) to select the conclusion based on the results of this material validation assessment.

D. List of Statement

No.	Statements	Rating Scale				
		SD	D	N	A	SA
	A. Design Visual					
1.	Does the design of the glossary suitable for official use?					✓
2.	Does the layout of the elements in the glossary make it easy to read and understand?					✓
3.	Are the color choices in the glossary clear, comfortable for the eyes, and not distracting for readers?					✓
4.	Do the font type and text size make the glossary easy to read and remain consistent on every page?					✓
5.	Is the appearance of the glossary effective and comfortable to read both in digital and printed formats?					✓
6.	Do the images or symbols used in the glossary help clarify the technical terms explained?					✓
7.	Does the glossary cover represent the content and identity of the product well?					✓
	B. Product Feasibility					
8.	Does the size and format of the handbook allow it to be printed in a easy-to-carry form?					✓
9.	Is this product easy to distribute digitally without requiring any additional special devices?					✓
10.	Do both the PDF and printed versions of the glossary allow users to quickly and easily search for terms?					✓
11.	Does the arrangement of terms allow for future development or additions?					✓
12.	Is this product designed for continuous use and to remain relevant over time?					✓

C. Comments

D. Suggestions

LIST OF POSSIBLE ERRORS	SUGGESTIONS

E. Result

☑ The Telecommunication Glossary Handbook media is feasible for trial.

☐ The Telecommunication Glossary Handbook media is feasible for trial with revisions.

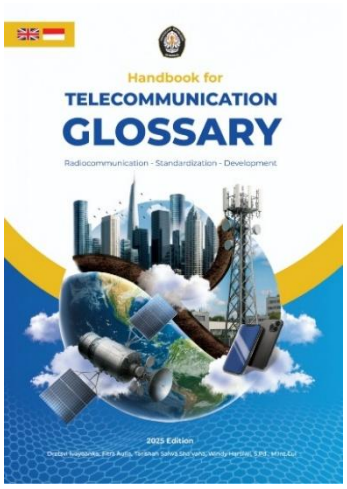
☐ The Telecommunication Glossary Handbook media is not feasible for trial without revisions.

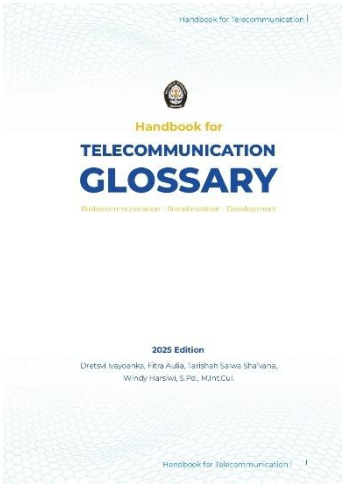
Semarang, June 4th 2025

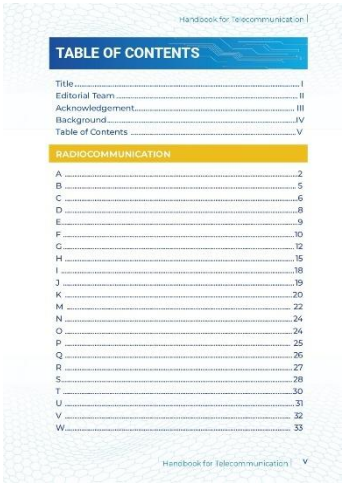
Validator,

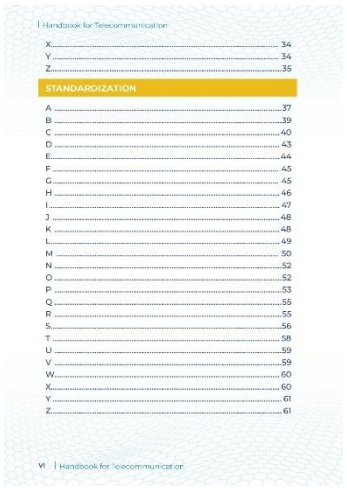
Sri Sunardi

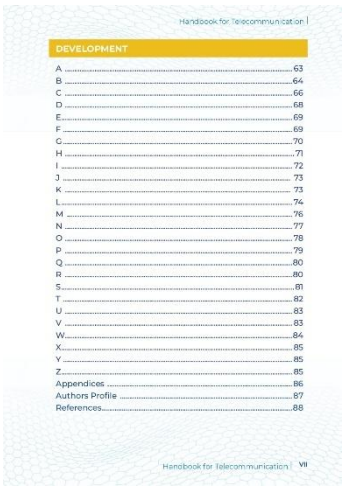
Appendix 4 Screenshot of the Final Product












STANDARDIZATION
Handbook for
Telecommunication Glossary
Handbook for Telecommunication
A
Artificial Intelligence
Bahasa Indonesia (IND) : Kecerdasan Artifisial
Definition :
kecerdasan buatan (artificial intelligence) diartikan sebagai "program komputer dalam meniru kecerdasan manusia, seperti mengambil keputusan, menyediakan dasar perolaran, dan karakteristik manusia lainnya.
Artificial intelligence is defined as "computer programmes that mimic human intelligence, such as making decisions, providing a basis for reasoning, and other human characteristics.
Example :
The development of digital technologies such as artificial intelligence and 5G is bringing new opportunities to promote digital transformation and accelerate
Perkembangan teknologi digital seperti kecerdasan Artifisial dan 5G membawa peluang baru untuk mendorong transformasi dan percepatan digital.
Source : APT WTDC25.
AI
37 | Handbook for Telecommunication
Handbook for Telecommunication
Approval
Bahasa Indonesia (IND) : Persetujuan
Definition :
Approval is an act of officially accepting or allowing something.
Persetujuan adalah tindakan menerima atau mengizinkan sesuatu secara resmi.
Example :
The alternative approval procedure is set out in Recommendation ITU-T A.8.
Prosedur persetujuan alternatif ditetapkan dalam Rekomendasi ITU-T A.8.
Source : ITU-T Documents
Assembly
Bahasa Indonesia (IND) : Majelis
Definition :
Assembly refers to a gathering or council, often for a specific purpose or with a representative function.
Majelis mengacu pada pertemuan atau dewan, sering kali untuk tujuan tertentu atau dengan fungsi perwakilan.
Example :
World Telecommunication Standardization Assembly (WTSA)
Majelis Standardisasi Telekomunikasi Dunia (WTSA)
Source: ITU Website
Handbook for Telecommunication | 38

B

B-ISDN (Broadband Integrated Services Digital Network)

Bahasa Indonesia (IND) : B-ISDN (Jaringan Digital Pelayanan Terpadu Pita Lebar)

Definition :
*An extension of ISDN that provides **high-speed digital transmission** of voice, video, and data over a single network, primarily using **ATM (Asynchronous Transfer Mode)** as the transport technology.*

Suatu pengembangan dari ISDN yang menyediakan transmisi data dengan **kecepatan tinggi** melalui jaringan digital, mendukung berbagai layanan seperti suara, video, dan data secara simultan menggunakan teknologi ATM

Example :
***B-ISDN** enables simultaneous voice and video transmission over a single high-speed digital network*

B-ISDN memungkinkan transmisi suara dan video secara bersamaan dalam satu jaringan digital berkecepatan tinggi

Source: ITU-T Recommendation I.113

C

Capacity Building

Bahasa Indonesia (IND) : Meningkatkan Pengembangan

Definition :
Capacity building is the process of developing and strengthening the skills, abilities, resources, and institutions that organizations or individuals need to survive, adapt, and thrive in a changing environment.

proses pengembangan dan penguatan keterampilan, kemampuan, sumber daya, dan lembaga yang dibutuhkan oleh individu atau organisasi untuk bertahan, beradaptasi, dan berkembang dalam lingkungan yang terus berubah.

Example :
*The international community urgently needs to enhance **capacity building** in artificial intelligence and strengthen international cooperation.*

Komunitas internasional sangat perlu **meningkatkan pengembangan** kapasitas dalam kecerdasan buatan dan memperkuat kerja sama internasional.

Source : ITU-WTDC

Conference

Bahasa Indonesia (IND) : Konferensi

Definition :
A conference is a formal meeting or gathering where people discuss specific topics, share information, and exchange ideas, often in a professional setting.

Konferensi adalah pertemuan atau rapat formal di mana orang-orang membicarakan topik tertentu, berbagi informasi, dan bertukar ide, biasanya dalam lingkungan profesional.

Example :
*Guidelines on Guidelines on API Focal Points for ITU Plenipotentiary **Conference**, World Telecommunication Standardization Assembly and World Telecommunication Development Conference.*

Pedoman tentang Panduan tentang Titik Fokus API untuk **Konferensi** Pleno ITU, Majelis Standardisasi Telekomunikasi Dunia dan Konferensi Pembangunan Telekomunikasi Dunia.

Source : MC48

Considering

Bahasa Indonesia (IND) : Menimbang

Definition :
Considering is used for saying that you have a particular opinion about something, because of a particular fact about it.

Mempertimbangkan digunakan untuk mengatakan bahwa Anda memiliki pendapat tertentu tentang sesuatu, karena fakta tertentu tentang hal itu

Example :
*After discussion among the regional representatives, the input was accommodated in the **considering** section: '), that the IEC and IEEE and other relevant organizations develop measurement standards for Specific Absorption Rate (SAR)*

Setelah melalui diskusi antar perwakilan regional masukan tersebut

diskenodir pada bagian **menimbang**: *'), that IEC and IEEE and other relevant organizations develop measurement standards for the Specific Absorption Rate (SAR).*

Source : WTSA24

Conformity

Bahasa Indonesia (IND) : Kesesuaian

Definition :
Conformity is the act of matching attitudes, beliefs, and behaviors to group norms or complying with rules, standards, or laws.

Tindakan menyesuaikan sikap , keyakinan, atau perilaku dengan norma kelompok, atau mematuhi aturan, standar, atau hukum yang berlaku

Example :
***Conformity** with international standards is essential to ensure product safety and global market access.*

Kesesuaian dengan standar internasional sangat penting untuk menjamin keamanan produk dan akses pasar global.

Source : ITU-T

D

Decisions

Bahasa Indonesia (IND) : Keputusan

Definition :
Decisions are the outcomes of choosing one option among several alternatives.

Keputusan adalah hasil dari memilih satu pilihan di antara beberapa alternatif.

Example :
***Decisions** WMC-48 approved the Work Programme for 2025 which includes holding of following meetings*

Keputusan : MC-48 menyetujui Program Kerja untuk tahun2025 yang mencakup penyelenggaraan pertemuan-pertemuan berikut

Source : APT WTDC25-2/INP-04

Digital Transformation

Bahasa Indonesia (IND) : Transformasi Digital

Definition :
Digital Transformation is the process of changing business or activities by using digital technologies to improve performance, efficiency, and services.

Transformasi Digital adalah proses perubahan bisnis atau aktivitas dengan memanfaatkan teknologi digital untuk meningkatkan kinerja, efisiensi, dan pelayanan

Example :
*ITU's Development Sector: Driving **digital transformation** worldwide.*

Sektor Pengembangan ITU: Mendorong **transformasi digital** di seluruh dunia.

Source : Committed to connecting the world

Digital Identity

Bahasa Indonesia (IND) : Identitas Digital

Definition :
A digital identity is the online or electronic representation of an individual, organization, or device.

Identitas digital adalah representasi elektronik atau daring dari individu, organisasi, atau perangkat

Example :
*The **Digital Identity** Roadmap Guide is a comprehensive set of guidelines for identifying the main aspects that need to be addressed during the design, development and implementation of a National Digital Identity Framework*

Panduan Peta Jalan **Identitas Digital** adalah seperangkat panduan komprehensif untuk mengidentifikasi aspek-aspek utama yang perlu dibangani selama desain, pengembangan, dan implementasi Kerangka Kerja Identitas Digital Nasional.

Source : Roadmad Guide ITU

E

Error correction

Bahasa Indonesia (IND) : Koreksi kesalahan transmisi data

Definition :
process of detecting and fixing errors in data transmission, communication, or storage.

proses mendeteksi dan memperbaiki kesalahan dalam transmisi, komunikasi, atau penyimpanan data.

Example :
***Error-correction,** data framing, modulation and emission methods for terrestrial multimedia broadcasting for mobile reception using handheld receivers in VHF/UHF bands*

Koreksi kesalahan, pembingkaian data, modulasi dan metode emisi untuk penyiaran multimedia terestrial untuk penerimaan bergerak menggunakan receiver genggam pada band VHF/UHF.

Source : Recommendation BT.2016

F

Financial Statement

Bahasa Indonesia (IND) : Laporan Keuangan

Definition :
A financial statement is a formal record of the financial activities and position of a business, individual, or organization

Laporan keuangan adalah catatan resmi mengenai aktivitas dan posisi keuangan suatu bisnis, individu, atau organisasi.

Example :
*ENSURING THE RETURN TO THE NORMAL REPORTING CYCLE FOR THE 2024 **FINANCIAL STATEMENTS***

MEMASTIKAN KEMBALINYA KE SIKLUS PELAPORAN NORMAL UNTUK **LAPORAN KEUANGAN** TAHUN 2024

Source : CWG-FHR-20/18

G

Guidelines

Bahasa Indonesia (IND) : Pedoman

Definition :
***Guidelines** are general rules, principles, or pieces of advice provided to direct or influence actions, decisions, or procedures in a consistent and standardized manner.*

Pedoman; dokumen acuan yang memberikan panduan teknis untuk penerapan standar

Example :
***Guidelines** for 5G deployment were discussed in ITU-T Study Group 13.*

Pedoman untuk penerapan 5G dibahas dalam KelompokStudi ITU-T 13

Source : ITU-T Study Group 13

H

Hazardous Waste

Bahasa Indonesia (IND) : Limbah Berbahaya

Definition :
wastes that belong to any category contained, one of them is clinical waste from medical care in hospitals and clinics, unless they do not possess any of the characteristics contained, such as flammable, poisonous, infectious, corrosive, toxic, etc.

Limbah yang termasuk dalam salah satu kategori yang tercantum, salah satunya adalah limbah klinis dari perawatan medis di rumah sakit dan klinik, kecuali jika limbah tersebut tidak memiliki salah satu dari karakteristik yang disebutkan, seperti mudah terbakar, beracun, menular, korosif, atau bersifat racun, dll.

Example :
*...for waste disposal and recovery and on transboundary movements of **hazardous waste***

untuk pembuangan dan pemulihan limbah serta pergerakan lintas batas **limbah berbahaya**

Source : Recommendation ITU-T L.1031

I

Implementation

Bahasa Indonesia (IND) : Implementasi

Definition :
Implementation is the process of putting a plan, policy, or idea into effect

Implementasi adalah proses menerapkan rencana, kebijakan, atau ide ke dalam praktik.

Example :
*The contribution aims to promote an efficientand effective approach to the **implementation** of the new ITU headquarters building project.*

Kontribusi ini bertujuan untuk mempromosikan pendekatan yang efisien dan efektif dalam **implementasi** proyek pembangunan gedung kantor pusat ITU yang baru.

Source : CWG-FHR-20/27

IoT (Internet of Things)

Bahasa Indonesia (IND) : Internet untuk segala benda

Definition :
Internet of Things (IoT) is the concept where physical objects are connected to the Internet and can exchange data automatically without human intervention

Internet of Things (IoT) adalah konsep di mana benda-benda fisik terhubung ke internet dan dapat saling bertukar data secara otomatis tanpa campur tangan manusia.

Example :
*IoT-GSI aimed to promote a unified approach in ITU-T for development of technical standards (Recommendations) enabling the **Internet of Things** on a global scale*

IoE-GSI bertujuan untuk memromosikan pendekatan terpadu dalam ITU-T untuk pengembangan standar teknis (Rekomendasi) yang memungkinkan **Internet untuk segala benda** dalam skala global.

Source : Internet of Things Global Standards Initiative

Intelligent Transport Systems

Bahasa Indonesia (IND) : Transportasi Cerdas

Definition :
Intelligent Transport Systems (ITS) are applied to services such as the provision of road traffic information and electronic toll collection, and deployed in many countries by using dedicated short-range communications (DSRC) or cellular phone systems.

Sistem Transportasi Cerdas (Intelligent Transport Systems (ITS)) diterapkan pada layanan seperti penyediaan lalu lintas jalan informasi dan pengumpulan tol elektronik, dan digunakan di ban- yak negara dengan menggunakan komunikasi jarak pendek (DSRC) atau sistem telepon seluler.

Example :
*Advanced **intelligent transport systems***

Sistem **transportasi cerdas** yang canggih

Source : Advanced intelligent transport systems

J

K

L

least-developed countries

Bahasa Indonesia (IND) : negara-negara tertinggal

Definition :
Least Developed Countries (LDCs) are low-income countries which are highly vulnerable to economic and environmental shocks and have low levels of human assets.

Negara-negara tertinggal (LDCs) adalah negara-negara berpendapatan rendah yang sangat rentan terhadap guncangan ekonomi dan lingkungan serta memiliki tingkat aset manusia yang rendah.

Example :
*For example, only 36 per cent of the population in **LDCs** used the Internet in 2022, compared with 66 per cent globally.*

Misalnya, hanya 36 persen penduduk di **negara-negara tertinggal** (LDCs) yang menggunakan internet pada tahun 2022, dibanding- kan dengan 66 persen secara global.

Source : eports/statistics/facts-figures-for-ldc/

M

Members

Bahasa Indonesia (IND) : Anggota

Definition :
Members are people who belong to a group, organization, or community

Anggota adalah orang-orang yang menjadi bagian dari suatu kelompok, organisasi, atau komunitas.

Example :
***Member** organizations, ITU-T SG 16. ITU-T is the sector of the International Telecommunications Union responsible for standardization in telecommunications.*

Organisasi **anggota**, ITU-T SG 16. ITU-T adalah sektor dari Union Telekomunikasi Internasional yang bertanggung jawab atas standarisasi di bidang telekomunikasi.

Source : ITU-T-SG

Metaverse

Bahasa Indonesia (IND) : Metamesta

Definition :
Metaverse is a virtual world based on the internet where people can interact, work, play, and engage in activities using digital avatars in a 3D environment.

Metaverse adalah dunia virtual berbasis internet yang memungkinkan orang berinteraksi, bekerja, bermain, dan beraktivitas menggunakan avatar digital dalam lingkungan 3D

Example :
*Promoting and strengthening **metaverse** standardization*

Mendorong dan memperkuat proses standarisasi **metamesta.**

Source : RESOLUTION 105

Modernize

Bahasa Indonesia (IND) : Modernisasi

Definition :
Modernize means to update something to make it more in line with current styles or standards, often by utilizing new technology.

Modernize berarti memodernisasi atau memperbarui sesuatu agar lebih sesuai dengan gaya atau standar masa kini, seringkali dengan memanfaatkan teknologi baru.

Example :
***Modernize** to support strategic priorities on technology advancement*

Modernisasi untuk mendukung prioritas strategis dalam pengembangan teknologi.

Source : ITU-T-SG

N

Norm

Bahasa Indonesia (IND) : Norma

Definition :
A principle or standard, especially of social behavior or technical conduct, adopted by consensus within a group or organization.

Suatu prinsip atau standar, terutama dalam perilaku teknis atau sosial, yang diadopsi berdasarkan kesepakatan dalam suatu kelompok.

Example :
*International **norms** for ICT standardization help ensure interoperability*

Norma-norma *internasional dalam standarisasi TIK membantu menjamin interoperabilitas.*

Source : ITU-T Documents

O

Open data

Bahasa Indonesia (IND) : Data Terbuka

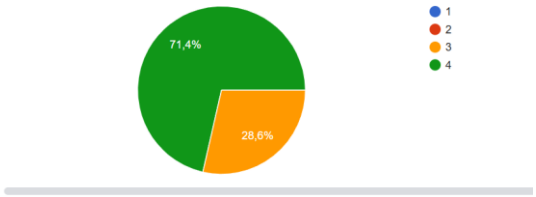
Definition :
Open data is information or content that is freely available for anyone to use, reuse, and redistribute, often subject to the requirement to attribute the original source.

Data terbuka adalah informasi atau konten yang dapat diakses secara bebas oleh siapa pun untuk digunakan, dimodifikasi, dan didistribusikan kembali, seringkali dengan syarat untuk mencantumkan sumber aslinya.

Appendix 5 Questionnaire Feedbacks

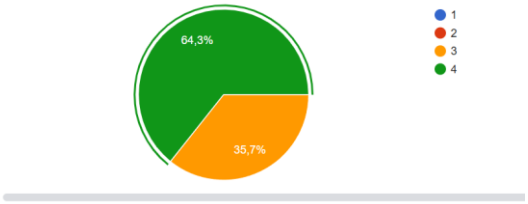
1. This glossary is relevant to the field of telecommunication, particularly in the sectors of Radiocommunication, Standardization, and Development.

14 jawaban



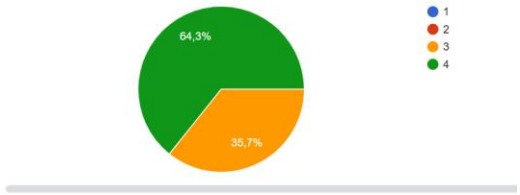
2. The selected terms in this glossary match the translation needs within the Ministry.

14 jawaban



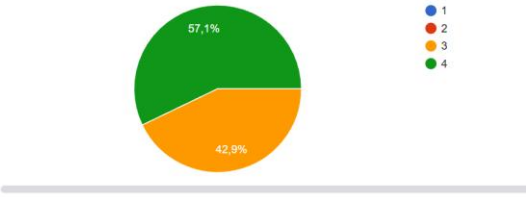
3. This glossary adheres to terminology standards recognized at the national and international levels.

14 jawaban



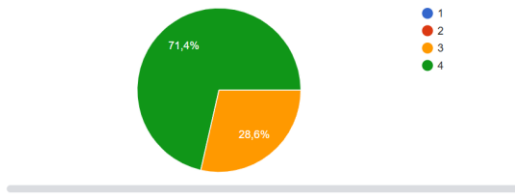
4. This glossary's definitions are written in clear and understandable language for both general users and professionals.

14 jawaban



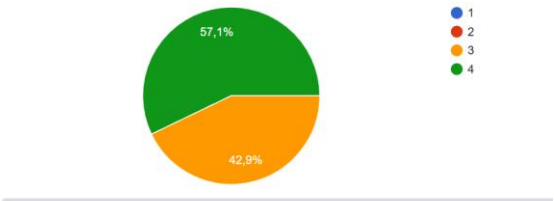
5. The definitions are accurate and align with the actual meaning of the terms in the context of telecommunication, particularly in radiocommunication, standardization, and development.

14 jawaban



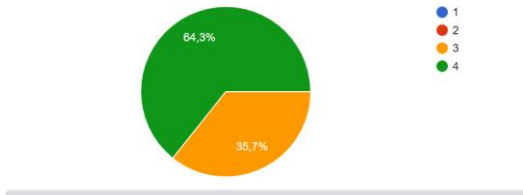
6. This glossary provides equivalent terms in both English and Indonesian in a consistent and balanced manner.

14 jawaban



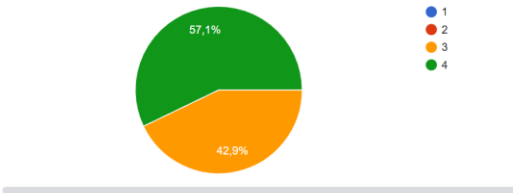
7. The Indonesian translations are appropriate and contextually accurate for technical and official documents.

14 jawaban



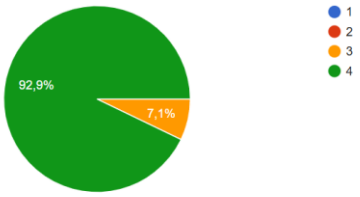
8. The language used in this glossary is effective and efficient for translation purposes.

14 jawaban



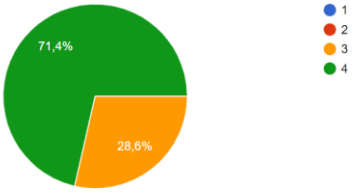
9. The terminology and definitions are consistently written and follow international terminology writing conventions.

14 jawaban



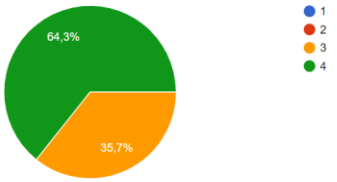
10. This glossary successfully avoids potential meaning errors caused by unclear or ambiguous terms.

14 jawaban



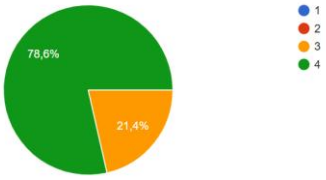
12. The layout of the elements in this glossary makes the content easy to read and understand.

14 jawaban



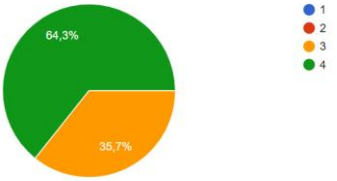
13. The color choices in this glossary are clear, comfortable for the eyes, and not distracting to readers.

14 jawaban



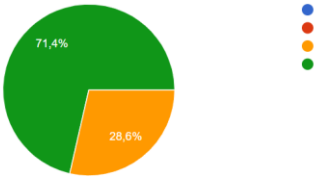
14. The font type and text size in this glossary make it easy to read and remain consistent throughout the pages.

14 jawaban



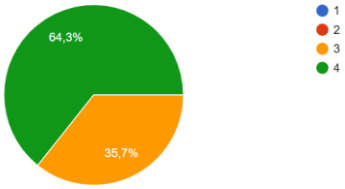
15. This glossary's appearance is effective and comfortable to read in both digital and printed formats.

14 jawaban



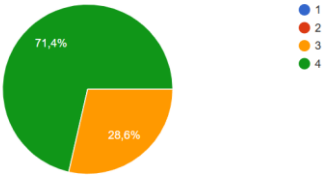
16. The glossary's images and symbols definitively clarify the technical terms.

14 jawaban



17. The cover of the glossary represents the content and identity of the product well.

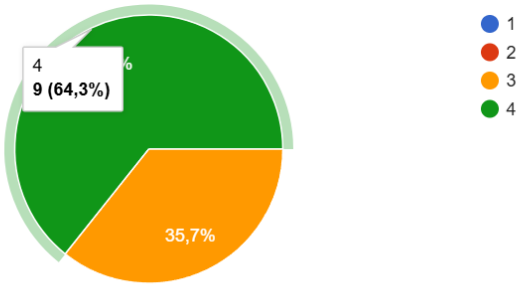
14 jawaban



18. The glossary's compact and portable size and format make it suitable for printing.

Salin diagram

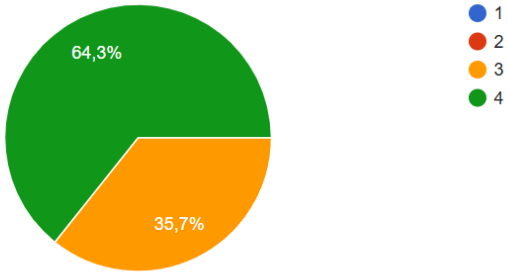
14 jawaban



19. The glossary's design and layout make it a reliable professional reference in the telecommunications field.

Salin diagram

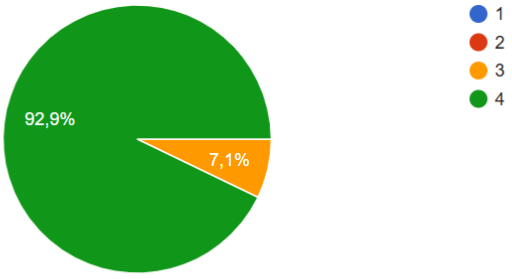
14 jawaban



20. This glossary is a media product that is feasible to use and distribute to relevant institutions or stakeholders.

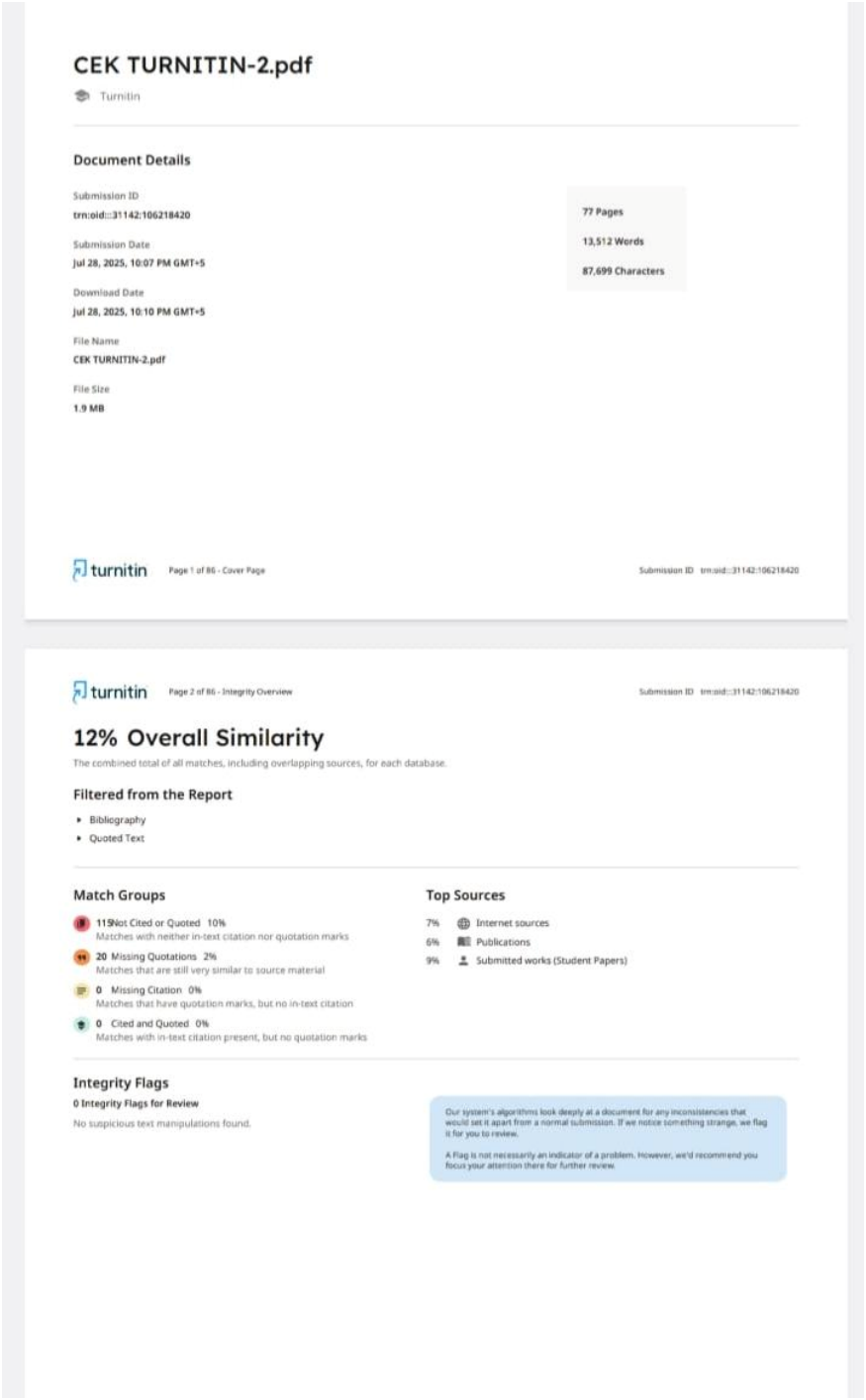
Salin diagram

14 jawaban



Appendix 6 Documentation

Appendix 7 Turnitin Result



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Appendix 8 Intellectual Property Right Certificate

REPUBLIK INDONESIA
KEMENTERIAN HUKUM

SURAT PENCATATAN CIPTAAN

Dalam rangka pelindungan ciptaan di bidang ilmu pengetahuan, seni dan sastra berdasarkan Undang-Undang Nomor 28 Tahun 2014 tentang Hak Cipta, dengan ini menerangkan:

Nomor dan tanggal permohonan	:	EC002025093753, 21 Juli 2025
Pencipta		
Nama	:	**Tarishah Salwa Sha'vana, Dretsvi Ivayoanka dkk**
Alamat	:	KP. Pondok Aren RT/RW 0003/003, Pondok Aren, Kota Tangerang Selatan, Banten, 15221
Kewarganegaraan	:	Indonesia
Pemegang Hak Cipta		
Nama	:	**Tarishah Salwa Sha'vana, Dretsvi Ivayoanka dkk**
Alamat	:	KP. Pondok Aren RT/RW 0003/003, Pondok Aren, Kota Tangerang Selatan, Banten, 15221
Kewarganegaraan	:	Indonesia
Jenis Ciptaan	:	**Buku**
Judul Ciptaan	:	**Handbook for Telecommunication Glossary**
Tanggal dan tempat diumumkan untuk pertama kali di wilayah Indonesia atau di luar wilayah Indonesia	:	1 Juli 2025, di Kota Semarang
Jangka waktu pelindungan	:	Berlaku selama hidup Pencipta dan terus berlangsung selama 70 (tujuh puluh) tahun setelah Pencipta meninggal dunia, terhitung mulai tanggal 1 Januari tahun berikutnya.
Nomor Pencatatan	:	000934014

adalah benar berdasarkan keterangan yang diberikan oleh Pemohon.
Surat Pencatatan Hak Cipta atau produk Hak terkait ini sesuai dengan Pasal 72 Undang-Undang Nomor 28 Tahun 2014 tentang Hak Cipta.

a.n. MENTERI HUKUM
DIREKTUR JENDERAL KEKAYAAN INTELEKTUAL
u.b
Direktur Hak Cipta dan Desain Industri

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Balai Besar Sertifikasi Elektronik

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