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

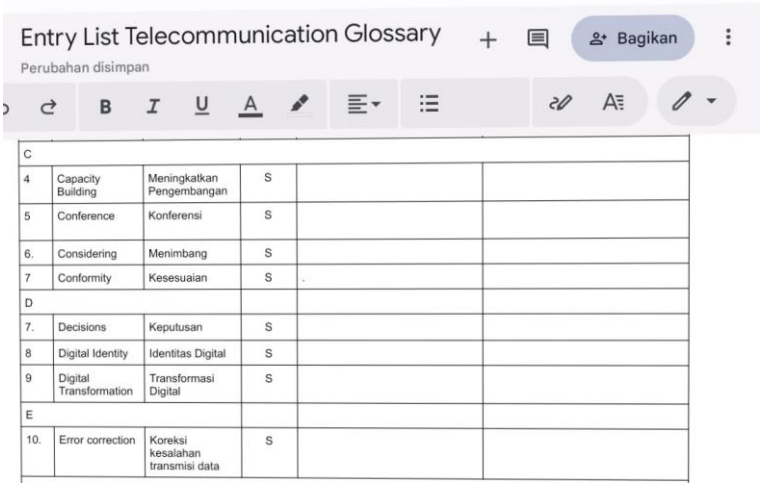
equivalents. The authors also ensured the reliability of the information by referring to trusted sources such as documents from the International Telecommunication Union (ITU). With this approach, the glossary served as a handy reference that was not only accurate but also consistent in its use of terms.

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

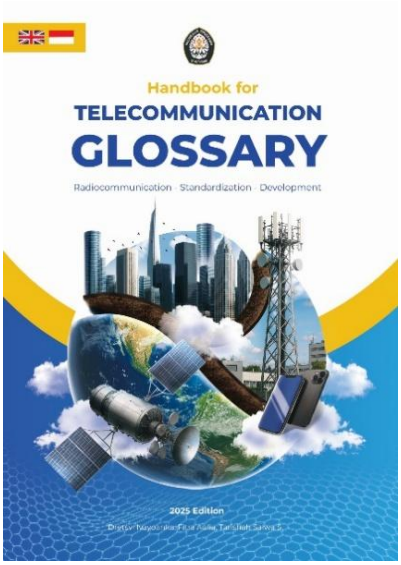


Figure 4.3 Front Cover of

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

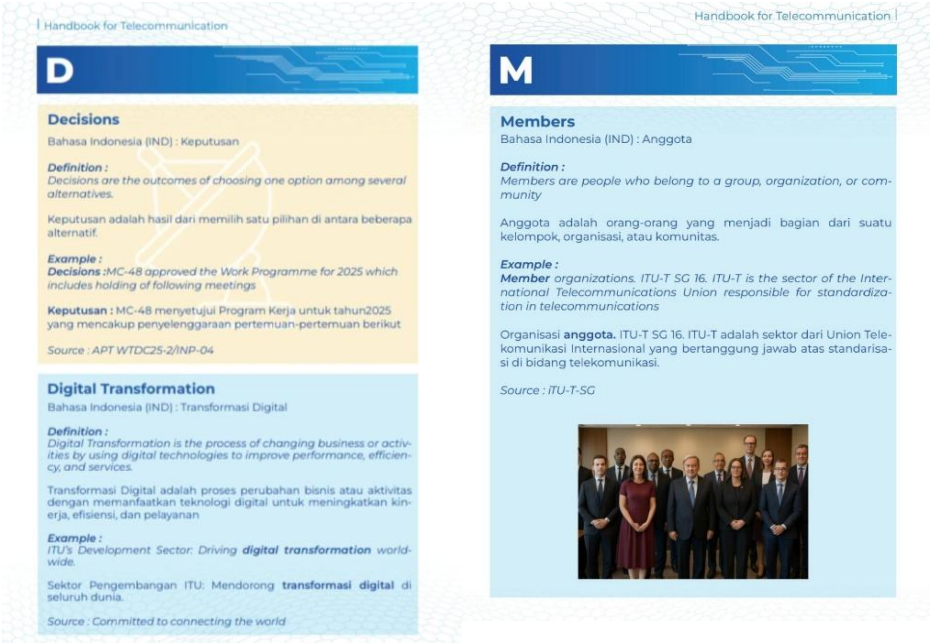


Figure 4.7 Main Content of Layout

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.

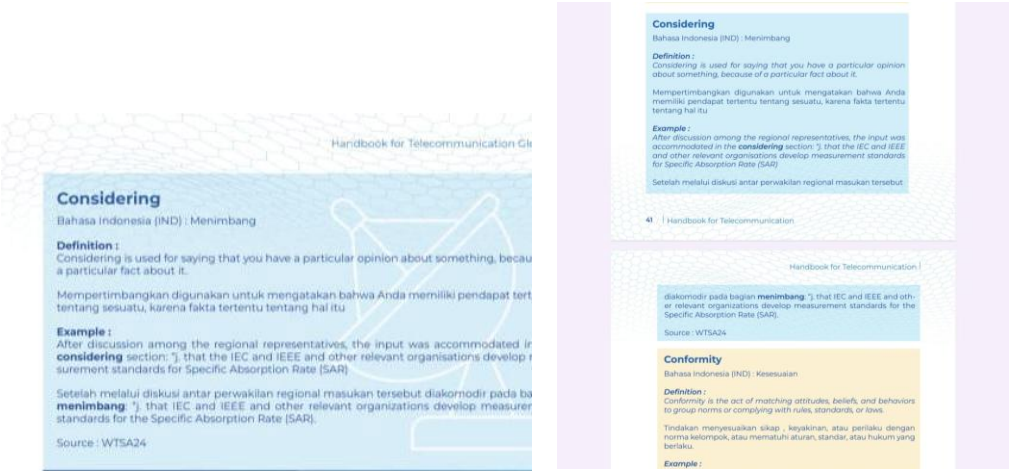


Figure 4.8 Sample of Font Size Before and After Validation

Figure 4.9 Sample of Images Before Validation

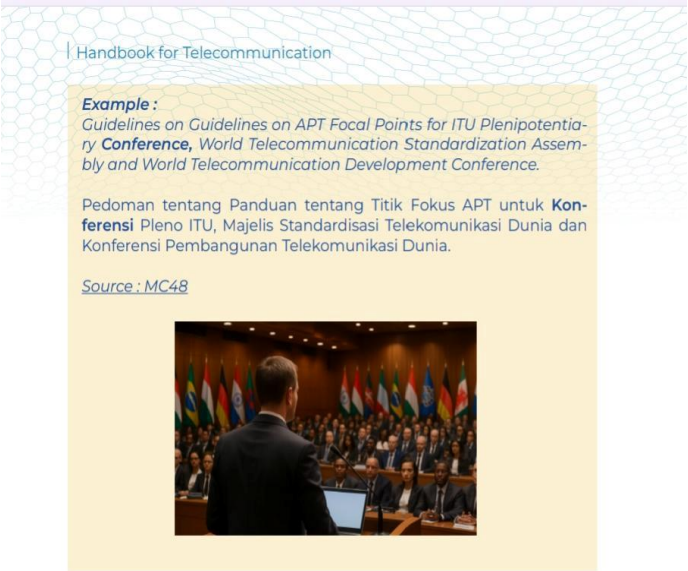


Figure 4.10 Sample of Images After Validation

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.