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HOW TO CREATE A MODERN ENGLISH-UKRAINIAN GLOSSARY OF TERMS FOR RESEARCH-ENGINEERING FIELD OF UAV AND USE IT FOR ACADEMIC PURPOSES

This article focuses on the distinctive features of developing a modern user-friendly English-Ukrainian glossary for research-engineering field of drones that are more formally known as unmanned aerial vehicles (UAVs) or unmanned aircraft systems. Currently, UAV is the most frequently used term denoting the flying object employed for recreational and professional civilian applications. However, UAVs used for military missions are often referred to as drones. Both terms are umbrella terms. They build up a large open term system which needs to be studied from the point of view of lexicography and translation.

In the era of rapid technological development and the growing number, importance, and active use of drones, the need for standardization and unification of terminology becomes increasingly relevant. The research aims to study the specifics of UAV terminology, to provide its semantic categorization and describe the methods for term translation and principles of glossary compilation.

It includes a detailed analysis of specific strategies for creating a modern electronic glossary: manual compilation based on expert knowledge and automated stacking using software such as Anaconda Navigator, Spyder, Microsoft Word and Excel, ABBYY Lingvo, DSL Compiler, and Anki.

Creating a glossary includes collecting and pre-processing texts, identifying key terms, translating, and adapting them. The creation of a glossary aims to improve communication in the scientific and technical fields and professionalism by correctly using terminology in different contexts.

The paper describes the practical application of the created glossary when teaching students courses of Terminology, Theory and Practice of Translation etc. including creating ANKI cards and interactive quizzes in Telegram to test their knowledge. Hence, the novel contribution of this study is to provide concrete recommendations and tools for practical use that will contribute to deeper understanding and better use of specialized glossary terms, which will be helpful in further development and standardization of terminology in the fast-growing UAV industry.

Key words: *glossary, dictionary, terminology, term, UAV, translation, NLTK, tokenization, lemmatization, stemming, corpus, Python, Anki, QuizBot.*

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ОСОБЛИВОСТІ СТВОРЕННЯ СУЧАСНОГО АНГЛО-УКРАЇНСЬКОГО СЛОВНИКА ТЕРМІНІВ ДЛЯ НАУКОВО-ТЕХНІЧНОЇ ГАЛУЗІ БПЛА ТА ЙОГО ВИКОРИСТАННЯ З НАЧАЛЬНОЮ МЕТОЮ

Подана стаття присвячена особливостям створення сучасного зручного у використанні англо-українського глосарію у галузі безпілотних літальних апаратів (БПЛА) або безпілотних авіаційних систем. У наш час БПЛА є найбільш часто використовуваним терміном для позначення літальних об'єктів, які використовують для рекреаційних і професійних цивільних цілей. Однак БПЛА, які використовують для військових завдань, часто називають дронами. Обидва терміни є узагальнювальними. Вони утворюють велику відкриту терміносистему, яку необхідно вивчати з точки зору лексикографії та перекладу.

В епоху стрімкого розвитку технологій та зростання кількості, значення та активного використання дронів потреба стандартизації та уніфікації термінології стає все більш актуальною. Метою дослідження є вивчення специфіки термінології БПЛА, проведення її семантичної категоризації та опис способів перекладу термінів та принципів укладання глосарію.

Стаття містить детальний аналіз конкретних стратегій створення сучасного електронного глосарію: ручне складання на основі експертних знань і автоматизоване стекування за допомогою програмного забезпечення, такого як *Anaconda Navigator*, *Spyder*, *Microsoft Word* і *Excel*, *ABBYY Lingvo*, *DSL Compiler* і *Anki*.

Створення глосарію передбачає збір і попереднє оброблення текстів, визначення ключових термінів, їх переклад і адаптацію. Створення глосарію має на меті покращити комунікацію в науково-технічній сфері шляхом правильного використання термінології в різних контекстах.

У статті описано практичне застосування створеного глосарію під час викладання курсів термінології, теорії та практики перекладу тощо, включаючи створення карток ANKI та інтерактивних тестів у *Telegram* для перевірки знань. Таким чином, новим внеском цього дослідження є надання конкретних рекомендацій та інструментів для практичного використання укладеного глосарію, що сприятиме глибшому розумінню та кращому використанню спеціалізованих термінів і буде корисним у подальшому розвитку та стандартизації термінології у активно розбудовуваній галузі БПЛА.

Ключові слова: глосарій, словник, термінологія, термін, БПЛА, переклад, *NLTK*, токенизація, лематизація, стемінг, корпус, *Python*, *Anki*, *QuizBot*.

Articulation of issue. With the rapid advancements in technology, particularly in drone manufacturing and operation, the need for standardized and precise terminology has become increasingly essential (Bulyk-Verkhola, 2016 : 112). This study investigates the English terminology of unmanned aerial vehicles (UAVs). Standardizing the terminology is especially important for the industry's development and integration into the global scientific community (Kuznietsova, 2017 : 80).

The **relevance** of the study of terminology and the creation of a glossary on technologies of drone manufacturing and operation is excellent due to the rapid development of this industry worldwide. Despite the growing number of studies and publications in this area, a comprehensive glossary of terminology at a sufficiently detailed level has yet to be created. The utilization of modern drones is becoming increasingly prevalent in diverse fields, including agriculture, logistics, defense, and science. This underscores

the necessity for establishing a unified terminology framework to facilitate effective communication and collaboration among professionals.

This paper aims to research and analyse the English-language terminology used in drone manufacturing and operation, with the subsequent development of guidelines for its translation into Ukrainian. This includes creating an English-Ukrainian glossary and with the help of specific software for this purpose. The paper also focuses on the terminology standardization and improvement communication quality in the scientific and technical fields.

The research deals with a critical analysis of the methodologies, the collection and processing of terms, translation and adaptation of terms, development of guidelines for English-Ukrainian translation and modelling the glossary itself.

Aviation terminology used in English-language sources on unmanned aerial vehicles (UAVs) must be gathered and processed to facilitate analysis and classification. This process involves removing non-semantic components and highlighting key terms.

The terms collected should be translated and adapted into Ukrainian, with due consideration given to the context of their use. It is essential to guarantee the precision, coherence, and intelligibility of the definitions provided.

The objective is to develop guidelines for standardizing terminology in the UAV industry. The recommendations should include methods for utilizing digital resources in student learning and assessment.

The study employed a range of **methodologies** to develop an English-Ukrainian glossary of terms for the research-engineering field of unmanned aerial vehicles (UAVs):

1. A critical analysis of primary sources:

A critical analysis of scientific papers on terminology, including theoretical aspects terminology as a science. A study of the historical development and contemporary state of English-language aviation terminology related to drone manufacturing and operation technologies (Lerner, 2005 : 2);

2. The analysis of dictionary definitions and word-formation analysis that allows selecting relevant key terms and their structural and semantic characteristics;

3. Structural and semantic analysis that enables the specifics of the terms to be comprehended;

4. Comparative method involves the comparison of the original texts with the translated ones to ensure the accuracy and consistency of terms;

5. The method of continuous sampling, namely the study of terminological units in technical texts

and the terms of related fields to form the relevant research material. This allowed for a complete and comprehensive study of the terms;

6. Statistical method that implied the analysis of the usage, distribution and semantic proximity of the terms selected. This helped to establish the structure of the semantic field and explore the style of using terms

The primary **material** for the study includes a corpus of texts that included more than 50 different sources. The corpus of texts comprised scientific articles, books, manuals, and other materials on the manufacture and operation of drones. The total volume of collected materials was 5,407 pages, equivalent to approximately two million words before initial processing. A substantial corpus of scientific works on terminology was consulted, which addressed the theoretical aspects of the creation and use of terminology in the field of aviation and UAVs. Various professional dictionaries and reference books, online resources, and specialized software were employed to assist with the compilation and translation of terms. The sources mentioned above ensured the accuracy of definitions and standardized terminology.

Several software tools have been employed for creating the glossary, including Anaconda Navigator and Spyder used to analyse and process large amounts of textual data; Microsoft Word and Excel used to systematize and organize the terms selected and ABBYY Lingvo x6 as the principal tool used to create the glossary. The option of DSL Compiler has been used to create and compile terminology databases.

Students who study to be translators, in particular in such an industry-specific area as UAV manufacture, need to remember a lot of terms. So besides creating and using ABBYY Lingvo x6, they can benefit from extra learning software.

Our choice is Anki. It is a free open resource that allows one to create flash cards for learning new vocabulary. Besides, it is content-agnostic and supports images, audio, videos and scientific markup (via LaTeX).

Another tool for successful language and terminology learning is social messengers with their range of options, especially most popular ones among the students. One of these tools is Quiz Bot in a digital platform Telegram that helps students to remember new notions and terms as well as test their knowledge.

These technologies not only encourage effective memorisation but also facilitate the development of deep understanding and confident use of new terms in the UAV domain. This approach integrates vocabulary into everyday learning practice, making language learning more meaningful and effective, which meets the modern requirements for language education.

A **glossary** is a structured list of terms, concepts, or terminology that provides definitions, explanations, or interpretations of specific terms used in a particular field, text, or document (Dictionary.com). Glossaries are commonly included in textbooks, books, research papers, and other publications to facilitate readers' understanding of terms, especially those who may not be familiar with the professional vocabulary of the field. Over the years, several prominent scholars have made significant contributions to the development of glossaries and dictionaries. For example, the English lexicographer Samuel Johnson, known for his groundbreaking work 'A Dictionary of the English Language' (1755), set a new standard for lexicography. Noah Webster's 'An American Dictionary of the English Language' (1828) played a pivotal role in shaping American English. In the French-speaking world, Émile Littré is celebrated for his 'Dictionnaire de la langue française' (1872-1877). Moving to more recent times, the Oxford English Dictionary, spearheaded by James Murray and completed by a team of editors, remains a monumental achievement in English lexicography. Ukrainian scholars have made significant contributions to lexicography, creating important glossaries and dictionaries throughout history. Pamvo Berynda's 'Lexicon Slavenorosskiy' (1627) was one of the first East Slavic explanatory dictionaries, containing about 7,000 entries of Church Slavonic words. Yevhen Tymchenko focused on historical lexicography, producing the 'Historical Dictionary of the Ukrainian Language' (1930-1932) and materials for a dictionary of 15th-18th century Ukrainian. Borys Hrinchenko's four-volume 'Dictionary of the Ukrainian Language' (1907-1909) is a landmark work with 68,000 words. Ahatanhel Krymsky, a polyglot and orientalist, worked on a Ukrainian-Russian dictionary and various etymological studies. Ivan Ohienko (Metropolitan Ilarion) contributed an etymological-semantic dictionary and included extensive glossaries in his 'History of the Ukrainian Literary Language'. Oleksa Horbach compiled several dialectal dictionaries, including one for the South Lemko dialect. Vasyl Nimchuk worked on historical lexicography, particularly the 'Dictionary of the Ukrainian Language of the 16th – First Half of the 17th Century'. These scholars' works have been crucial in preserving and studying the Ukrainian language, its historical development, and dialects. Their efforts span centuries, from early modern times to the 20th century, reflecting the evolving nature of the Ukrainian language and the scholarly approaches to its study. Each dictionary or glossary not only captured the language of its time but also contributed to the standardization and understanding

of Ukrainian. From explaining Church Slavonic terms to documenting regional dialects and tracing etymologies, these works form a rich tapestry of Ukrainian lexicography, demonstrating the depth and breadth of scholarly engagement with the language throughout its history.

A glossary aims to clarify unfamiliar or outdated words, provide clear and understandable definitions of terms, promote a better understanding of specialized terminology, and ensure unambiguous interpretation of concepts. A glossary, also known as a terminology base, is an organized collection of approved translations for specific terms. These can be technical terms, industry-specific jargon, or just set words that are used frequently in specific content. Glossaries are of different types depending on their objective and intended audience. They can be of general purpose, i.e., covering terms from different fields, or industry-related, focusing on a particular topic or industry, e.g., medicine, law, or information technology (Kovaliv, 2007 : 231).

The drone terminology includes various terms and concepts related to unmanned aerial vehicles (UAVs) or drones. To maximize the coverage of the structural and semantic content of the drone terminology, we define the main classifications of drones, their main objectives, and the main concepts and principles of this terminology.

There is no unified standard when it comes to UAV classification. Defence agencies have their classification standards, and civilians have their flexible categories for UAVs. They classify them by size, range, and endurance and use the tier system used by the military. The website of the US National Aviation Intelligence Integration Office provides a good overview of the world's UAV classification categories.

A drone is an unmanned aircraft. Drones are more formally known as unmanned aerial vehicles (UAVs) or unmanned aircraft systems. Essentially, a drone is a flying robot that can be remotely controlled or fly autonomously using software-controlled flight plans in its embedded systems, which work in conjunction with onboard sensors and a Global Positioning System (GPS) (www.Techtarget).

UAVs were most often associated with the military. They were initially used for anti-aircraft target practice, intelligence gathering and, more controversially, as weapons platforms. For military purposes, drones can be sent on missions deemed too dangerous for human pilots in manned aircraft. Personally owned civilian drones, however, have a range of different professional and recreational uses, including the following: search and rescue,

surveillance, traffic monitoring, weather monitoring, firefighting, personal use, drone-based photography, videography, agriculture, delivery services etc.

To classify by size, we can distinguish the following subclasses (Fahlstrom, 2002): very small UAVs, micro or nano UAVs, small UAVs, mini UAVs, medium UAVs and large UAVs.

UAVs can also be classified by range and endurance, including the subclasses designed by the US military: very close-range UAVs, close-range UAVs, short-range UAVs, mid-range UAVs, and endurance UAVs

The total number of terms in the UAV research-engineering field is 700. They include: nouns – 408 terms; noun phrases – 256 terms; adjectives – 14 terms.

We have also obtained the data reflecting the frequency of different translation methods, which is an important aspect of understanding the quality and accuracy of translated terms.

Tracing (332 terms) is the most common method, which indicates its efficiency in adapting terms into the Ukrainian language. Addition (119 terms) and transliteration (109 terms) were also extensively used, indicating the need to preserve the original form or phonetic similarity of terms. Substitution (103 terms) and deletion (5 terms) were used to tailor terms to the Ukrainian language context but were less common. Descriptive translation (32 terms) and substitution/tracing (1 term) were used to describe the terms in more detail and adapt them to a specific context when greater precision or adaptation to a specific context was required.

There are several methods of creating a glossary, the choice of which depends on the purpose of its creation, available resources, and the specifics of the terminology. The main methods include:

1) Manual compilation:

- Expert method. A group of experts in the relevant field compiles the glossary.
- Questionnaire method. Questionnaires with terms and fields for defining and describing them are distributed to experts in the field;

2) Automated compilation:

- A method of term extraction. Automatic extraction of terms from texts using special software.
- Machine learning method. Training a machine model on a data set containing terms and their definitions;

3) Mixed methods:

- A combination of manual and automated methods. Using experts to verify and correct the results of automated term extraction.

For the creation of glossaries, particularly for translation and localization, specialized software

programs assist in the translation process and terminology management. The following software products are given as examples that might be of service for this purpose.

SmartCAT is another popular automated translation tool that supports glossary creation and provides post-editing capabilities. It facilitates effective collaboration between translators and ensures consistency in the use of terms (www.polilingua.com).

MemoQ enables the creation of glossaries and facilitates translation speed by storing data and providing pre-prepared translation templates. This tool represents a robust solution for managing translation projects and terminology (www.polilingua.com).

Wordfast offers the capacity to create industry-specific dictionaries of terms and abbreviations, thereby facilitating the control of the quality of translations. It is a user-friendly translation software that facilitates the efficient management of terminology (www.polilingua.com).

OmegaT is a translation software that facilitates the creation of glossaries and offers post-editing tools. The software offers effective terminology management, facilitating more productive work for translators (www.polilingua.com).

The **Déjà Vu** software enables the creation of glossaries and facilitates the translation process by utilizing stored data and pre-existing translation templates. This application represents a valuable resource for translators, offering an effective solution for terminology management (www.polilingua.com).

Transit NXT Professional enables the creation of industry-specific dictionaries of terms and abbreviations, facilitating the control of the quality of the translations produced. This application offers translators a convenient tool for effective terminology management (www.polilingua.com).

Crowdin is a translation collaboration platform that enables the creation of glossaries, thereby providing translators access to contextual information and facilitating the consistent use of terminology across languages. Furthermore, Crowdin offers voting and proofreading functionality, which enables the selection of the most appropriate translation following a collaborative voting process on proposals (www.polilingua.com).

Microsoft Office applications are also frequently employed to create glossaries. Microsoft Word allows users to format text and easily create tables and lists of terms. Microsoft Excel offers the possibility of structured data storage, allowing the creation of databases of terms, which can then be sorted and filtered. The utilization of formulas and macros in

Excel enables the automation of specific processes, such as adding new terms or updating existing definitions (www.polilingua.com).

ABBY Lingvo is a widely recognized and utilized glossary software application. The software enables users to create personalized dictionaries, add new terms and their definitions, and conveniently organize information. Furthermore, it can support many languages, rendering it an invaluable asset for those engaged in multilingual endeavours (www.abbyy-lingvo.com).

Anaconda Navigator and Spyder are software tools that analyze data and execute scientific calculations. Although not explicitly designed for glossary creation, their text processing and big data analysis capabilities can automatically extract terms from texts and process them further. The use of Python, which is supported by these tools, enables the creation of specialized scripts that can automate the glossary creation process. Anki is an electronic flash card maker that can also be utilized to create glossaries. The software allows users to create cards with terms and their definitions, as well as to add images and audio. Furthermore, cards can be organized into sets for easy reference. Anki boasts a powerful term repetition feature that facilitates memorizing and learning new vocabulary (www.polilingua.com).

A specialized Python program was developed to identify and select key terms from a wide range of English-language aviation terminology, focusing on those terms relevant to the subject of drones. The fundamental principle underlying its operation is analysing and processing a pre-prepared corpus of texts. The corpus, compiled by the author, comprises materials from over 50 sources, including books on aviation topics, reference books, and scientific papers, with a total volume of over 5,000 pages. The processing procedure entails the removal of non-semantic elements, including punctuation marks, numbers, and other irrelevant components, to optimize subsequent analysis and highlight the most significant terms.

The fundamental concept of the program is the utilization of the Natural Language Toolkit technologies in Python, specifically:

1) **Tokenization** is the process of segmenting text into individual words or tokens. The Natural Language Toolkit (NLTK) provides various tools for tokenizing text, employing various methods, including separating text into individual tokens based on space, punctuation, and other criteria;

2) **Lemmatization** is the process of reducing words to their basic forms (lemmas). The process of reducing words to their fundamental forms (lemmas) is known as lemmatization. To illustrate, ‘runs’ is transformed into ‘run’ The NLTK word lemmatization

module facilitates the reduction of words to their fundamental forms;

3) **Stemming** is the process of removing affixes (prefixes and suffixes) from words in order to reduce them to their stems. The process of removing affixes (prefixes and suffixes) from words to reduce them to their stem. To illustrate, the word ‘bigger’ can be transformed into ‘big’ NLTK supports a range of stemming algorithms, including Porter and Snowball;

4) The process of **stop word removal** involves eliminating words that are considered to be superfluous or irrelevant within a given context. This process involves removing words from the text that do not contribute any meaningful information, such as ‘and’, ‘or’, ‘a’, and so forth. NLTK contains a list of standard stop words and the capacity to utilize user-defined lists;

5) **Part of Speech Tagging**: The process of assigning parts of speech to each word in the text. NLTK offers tools that facilitate the automatic identification of the parts of speech associated with each word, utilizing built-in models;

6) **Term frequency** is the number of times a term appears in a text – the number of instances of each word in a document. The NLTK can be employed to calculate the frequency of each word in a text.

As a result of implementing these and other functionalities in the code, the program generates a Word document where words are ordered in descending order of their frequency of occurrence in the analysed corpus of texts (ref. Fig. 1). Each word is assigned to a part of speech; however, it should be noted that some words were misclassified, which is an unavoidable limitation in the absence of additional manual analysis of each word in the corpus. Furthermore, the program determines and displays the percentage of occurrences of each word in the text relative to the total number of words in the material under study.

	A	B	C	D
1	Word	POS	Frequency	Percentage
2	aircraft	NN	8383	1.049181
3	system	NN	8330	1.042548
4	control	NN	6041	0.756066
5	uav	JJ	5971	0.747305
6	flight	NN	5379	0.673213
7	drone	NN	4758	0.595491
8	battery	NN	3023	0.378346
9	using	VBG	2945	0.368584
10	design	NN	2621	0.328033
11	operation	NN	2601	0.32553
12	data	NNS	2597	0.32503

Fig. 1. The result of text processing

The frequency of use of a term in the text is not a determining factor in its inclusion in the glossary. For instance, the term *aircraft* that occurs over 8,000 times, will not be included due to its broad applicability and incompatibility with the highly specialized terms that are the subject of the study. Nevertheless, the analysis of the frequency of use of the terms enabled the formation of a list of words actively used in the scientific and professional literature of the relevant field. This ensures a reasonable choice of terms based on the data obtained.

The glossary's sources of terms are not limited to the selected corpus of texts. A further search was conducted for terms in additional sources, including online resources and specialized forums, to ensure the greatest possible relevance. This was necessary because even a relatively large corpus of texts can only cover some of the terms used in the aviation industry, particularly in the context of unmanned aerial vehicles (UAVs).

An XLSX file was created to facilitate the organization and visualization of the information. It contains the following fields: word, definition in English, abbreviations, part of speech, definition in Ukrainian, translation, frequency of use, frequency in percentage, and translation method. A small fragment of this table is presented in Fig. 2:

685	Winglet	A small, vertical or semi-vertical projection on the wing of an unmanned aerial vehicle (UAV). The objective is to enhance aerodynamic performance by reducing the adverse effects of drag and increasing the lift-to-drag ratio, thereby improving the vehicle's fuel efficiency and range.	Невеликий вертикальний або напів-вертикальний виступ на крилуку кріла безпілотної літаючої апаратури (БПЛА). Мета - покращити аеродинамічні характеристики за рахунок зменшення несприятливого впливу добового опору на об'єктивні аеродинамічні властивості кріла до добового опору, тим самим покращуючи ефективність та дальність польоту апарату.	Клишеч крила	2	0.0062703	Додавання
686	Wingtip	Outboard edges of an aircraft's wings, typically located at the ends of the wingspan. Wingtips play a crucial role in aerodynamics by reducing drag and improving efficiency during flight. Various designs of wingtips exist, including rounded, squared, and winglets, each tailored to optimize performance.	Зовнішні краї крила літака, зазвичай розташовані на кінцях розмаху крила. Зовнішні краї відіграють важливу роль в аеродинаміці, зменшуючи опір і підвищуючи ефективність під час польоту. Існують різні конструкції крил, адаптовані до	Закінчення крила	5	0.0066275	Коригування

Fig. 2. Part of XLSX glossary

The total number of terms is 700. The largest category is that of nouns, which account for 406 terms. Noun phrases constitute the second largest category, with 256 terms. Adjectives account for 14 terms, while noun plural and combined forms, such as noun/adjective, noun/verb, and noun/adjective/verb, account for two terms. Finally, there is one term each for adjective/adverb and verb.

The diagram below provides a visual representation of this distribution, offering a clear understanding

of the frequency of different parts of speech among the UAV glossary terms (ref. Fig. 3). This facilitates a more efficient navigation of the glossary structure and content and an enhanced comprehension of the most prevalent types of terms within a given field of knowledge.

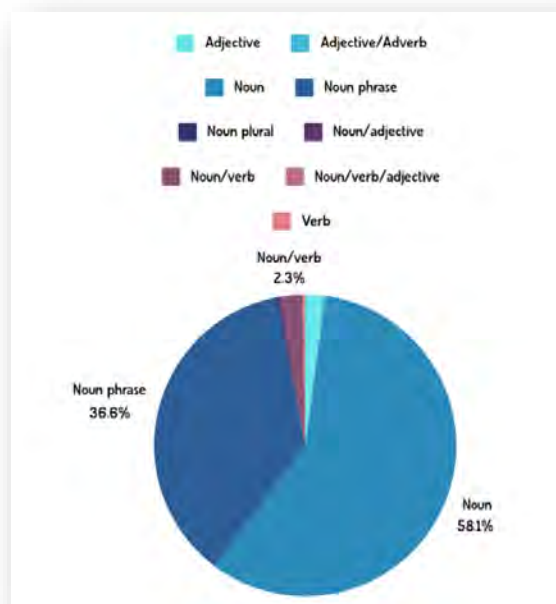


Fig. 3. Visual representation of PoS distribution

Additionally, a diagram (see Fig. 4) is provided, which visualizes the distribution of translation transformation used. This facilitates a clear understanding of the frequency of utilization of different translation transformation methods among the glossary terms.

The most common method is tracing, which indicates its effectiveness in adapting terms to the Ukrainian language. Furthermore, addition (119 terms) and transliteration (109 terms) are frequently employed, suggesting the necessity to maintain the original form or phonetic similarity of terms. Substitution (103 terms) and omission (5 terms) are employed to adapt terms to the Ukrainian language context, although they are less prevalent. Descriptive translation (32 terms) and substitution/tracing (1 term) are employed to provide a more detailed description or adaptation of terms when greater precision or adaptation to a specific context is required (Khaidari, 2015 : 148). The distribution of the transformation use is shown in Fig. 4.

Let us focus on creating a glossary in **ABBYY Lingvo** using the **DSL language**. Creating a dictionary in ABBYY Lingvo using a Domain-Specific Language (DSL) represents a distinctive approach to developing and maintaining language

resources. A domain-specific language (DSL) is a specialized programming language designed to solve specific problems or solutions in a particular field. In the context of ABBYY Lingvo, using a Domain-Specific Language (DSL) enables the creation of dictionaries that can be integrated into text translation applications. This approach ensures high accuracy and flexibility in processing language data.

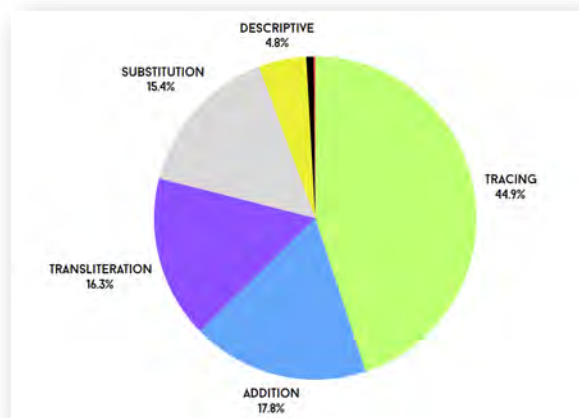


Fig. 4. Visual representation of translation transformations distribution

Creating a word card in ABBYY Lingvo is straightforward and comprises the following steps: The DSL dictionary can be created in any text editor. The process can be conducted using the standard Notepad application. A simple text file is created. Each line commences with a service part, followed by user information enclosed in quotation marks and separated from the service part by a single space. The header comprises the name of the dictionary (UAV GLOSSARY), the source language (English), and the target language (Ukrainian). Once the header has been created, the next step is populating the dictionary. Each card must have both a title and text. The title should comprise the word or phrase to be translated and placed on a separate line, with the first position reserved for this information. The card's text may contain the translation, as well as any additional information considered helpful by the dictionary's author. The card's text should be placed on the line following the title, and the text may span any number of lines. It is recommended that each line of card text should begin with a space or a tab character (TAB key). This straightforward approach enables the title to be distinguished from the accompanying text. The DSL language exhibits considerable flexibility in its syntax, employing what are known as tags. We will now create our word card (ref. Fig. 5). The DSL tags were employed to achieve this, adding media, links, a

colored font, a comment area, and a translation. After writing the code, we save the file in DSL format and change its encoding to UNICEF. After that, we launch ABBYY Lingvo DSL Compiler X6 and create the dictionary file. Once created, we run the file and see that our dictionary has been added to ABBYY Lingvo.



Fig. 5. Example of a created card in ABBYY Lingvo glossary

The exact process has been repeated for the remaining 699 words in the glossary, adding or deleting tags as required for each word.

In parallel with the problem of glossary creation, a question arises of how students who train to be terminologists and translators can study the terms to perform high-quality industry-related translation. For this purpose, two popular training techniques have been selected, namely Anki and Telegram Quiz Bot). Both are popular and user-friendly online resources, which students opt for educational reasons.

Anki is a software application designed to create and utilize electronic cards based on the interval repetition method. This method allows for the optimization of the process of memorizing large amounts of information by repeating the material with a gradual increase in the intervals between sessions. In addition, a glossary has been created for this program. The process of creating a glossary in this program is also relatively straightforward. The following steps are taken to achieve this: We modify our Excel file with the glossary words, delete unnecessary columns, and leave only the translation word. A text file should be created, and the data, words, and translations transferred to it. An Unmanned Aerial Vehicle (UAV) deck is created, the .txt file is imported, tab delimitation is selected, and all 700 words are added to the deck. The result is shown in Fig. 6.

The Telegram Quiz Bot is an interactive tool designed for creating and managing quizzes and tests. It allows users to create custom multiple-choice questions, modify quizzes, and share them with others. The bot supports various question types, including text and multimedia, making it a versatile tool for educational purposes. It can be used for learning vocabulary or testing knowledge.

700 notes found in file. Of those:
 700 new notes imported. Show

▼ Details

#	Status	Поля
1	Додано	2.4 GHz Spread Spectrum, Спектр 2,4 ГГц
2	Додано	3D Mesh, 3D-сітка
3	Додано	Above Ground Level, Над рівнем землі
4	Додано	Accelerometer, Акселерометр
5	Додано	Accumulator, Акумулятор
6	Додано	Acro mode, Режим "Акро"
7	Додано	Active flow control, Активне регулювання потоку
8	Додано	ActiveTrack, Технологія "ActiveTrack"
9	Додано	Ad hoc On-Demand Distance Vector Routing, Технологія "AODV"
10	Додано	Adaptability, Адаптивність
11	Додано	Advanced persistent threat, Просунута постійна мережева загроза
12	Додано	Aerial Photography, Аерофотозйомка

Fig. 6. Anki deck of UAV terms

To create a Quiz Bot, users need to find the bot on Telegram using the @QuizBot tag, launch the bot, and send the /newquiz command to start creating a new quiz. Users are prompted to provide the quiz's name, a title, and an optional description. The bot then guides users through creating questions and, once completed, the quiz is ready to be published.

The Quiz Bot in Telegram is a useful tool for creating vocabulary and terminology tests. It simplifies the process of creating and sharing tests, making it easier for educators and students to exchange learning materials. Additionally, the incorporation of multimedia elements makes tests more engaging, and the automated scoring system provides personalized feedback to users. The example of a question created based on our glossary is provided in Fig. 7.

We undertook several unique tasks that led to significant results in the creation of a cutting-edge English-Ukrainian glossary for the scientific and technical field of unmanned aerial vehicles (UAVs). We conducted a critical analysis, focusing on the nuances of aviation terminology, to evaluate the effectiveness of existing methods for creating glossaries. This distinctive approach enabled us to identify the most effective procedures for the collection, processing, and translation of terms.

The terminology was collected from English-language sources on UAVs, allowing for the terms to be analysed and classified. Non-semantic components were excised, and key terms were identified. The terminology was translated and adapted into Ukrainian, with due consideration given to the context of its use. The definitions were ensured to be accurate, consistent, and straightforward. Recommendations were formulated to standardize terminology in the field of unmanned aerial vehicles. They include methods for using digital resources in teaching and student assessment.

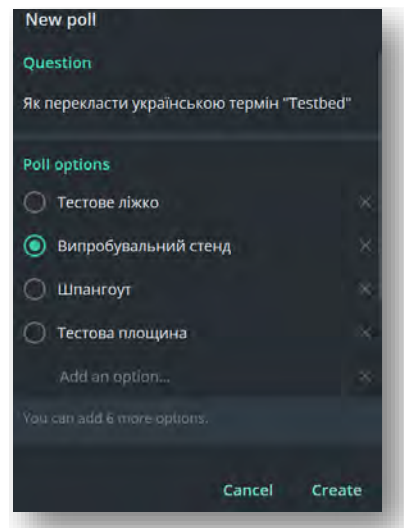


Fig. 7. An example question of our quiz

A glossary of English-Ukrainian terms has been compiled for the scientific and technical field of UAVs. Subsequently, the glossary has been tested in a practical teaching context, with students using it as a reference tool. A glossary in Microsoft Word was created, along with ANKI and DSL cards, and an interactive quiz has been developed and made available on Telegram.

The creation of the glossary of UAV terms has played a pivotal role in enhancing communication and professionalism within the scientific and technical fields. By ensuring the consistent and appropriate use of terminology across diverse contexts, our research has significantly contributed to developing and standardizing terminology in the rapidly growing field of UAVs. We have provided practical guidance and tools that will undoubtedly improve the understanding and use of specialized vocabulary in translation.

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