Morphological And Prefixal Word-Formation Methods In Shaping Ict Terms In English And Uzbek

Madraximova Durdona Umirbekovna

Assistant at the Department of Foreign Language at Tashkent University of Information Technologies, Uzbekistan

Abstract: As a result of the rapid development of information and communication technologies (ICT), the emergence of new terms and the need to adapt them to different languages is increasing. This academic article provides an in-depth analysis of the morphological, prefixal, and word-formation processes involved in the formation of information and communication technology (ICT) terminology in English and Uzbek. The study examines the morphological systems of both languages, the mechanisms of creating new terms through affixation, and the principles of developing compositional models based on word combinations. In English, ICT terms are mainly formed through prefixation and compounding, which constitute the core of global terminology. Uzbek, in turn, adapts these terms to the norms of the national language and generates new terms through its own word-formation system. As a result of this process, new units such as "raqamlashtirish" (digitalization), "foydalanuvchi" (user), "axborot tizimi" (information system), and "ma'lumotlar bazasi" (database) have emerged in our language. The article also analyzes the phonetic and morphological adaptation of terms borrowed from English, as well as the processes of aligning them with the normative standards of the Uzbek language. The research findings have practical significance for standardizing ICT terminology in Uzbek and ensuring its compatibility at the international level.

Introduction: Today, as a result of the rapid acceleration of technological progress worldwide, information and communication technologies (ICT) are penetrating deeply into all spheres of human activity. In every field, concepts such as digitalization, automation, artificial intelligence, databases and cybersecurity are widely used. At the same time, new terms that denote these fields are emerging and becoming an integral part of the global terminological system. Since a large portion of such terms comes from English, one of the urgent issues is to form them in Uzbek correctly, on a scientific basis, and in accordance with the norms of the national language.

Language is a key indicator of social development, and through it science, technology and culture advance. From this point of view, the emergence of new terms reflects the natural process of language development. Any language, including Uzbek, makes use of its existing morphological and word-formation resources in the process of expressing new concepts. However, because ICT terms are mainly formed in English, their direct translation into Uzbek does not always yield fully adequate equivalents. Therefore, it is necessary to study the morphological, prefixal and semantic features of the terms and to rework them in line with the systemic norms of the Uzbek language.

English is considered the main source of global scientific and technical terminology. Most ICT terms are created in English and subsequently enter other languages, including Uzbek. For example, terms such as download, upload, software, hardware, database, network, digitalization have acquired the status of commonly used international units today. In Uzbek, these terms have been reworked on the basis of the national morphological system, giving rise to forms such as yuklab olish (download), dasturiy ta'minot (software), ma'lumotlar bazasi (database), raqamlashtirish (digitalization), tarmoq (network).

From a linguistic point of view, the process by which each new term enters a language system takes place in

two stages: the first is adoption (adaptation), and the second is integration, that is, its adjustment to the national language system. For this reason, in studying ICT terms it is necessary to analyze in depth their morphological structure, the functions of derivational affixes, and the mechanisms of reflecting English prefixal models in Uzbek.

The main purpose of this article is to identify the specific features of morphological, prefixal and word-formation methods used in the formation of ICT terms in English and Uzbek, and to substantiate the mechanisms of their interaction on a scientific basis. In addition, the study analyzes the practices of adapting terms borrowed from English into Uzbek, their semantic changes, and their impact on the normative standards of the national language.

LITERATURE REVIEW

The issue of forming information and communication technologies (ICT) terminology is one of the important research directions in modern linguistics and terminology studies. In recent years, numerous scholarly investigations have been conducted on the analysis of ICT terms in English and Uzbek through morphological, prefixal, and word-formation methods. In this section, based on these studies, the theoretical foundations and practical manifestations of term formation are examined.

In world linguistics, the works of scholars such as E. Wüster, A. Rey, S. D. Shelov, L. Hoffmann, and V. Leichik play an important role in studying the theoretical foundations of terminology. They have conducted in-depth analyses of the systematic nature of terms, their semantic stability, and morphological models. For example, E. Wüster (1931) substantiated terminology as an independent scientific field and emphasized the need to ensure morphological and semantic consistency in the creation of new terms.

Research on ICT terminology in English has mainly focused on issues such as semantic transparency, word-formation mechanisms, and the creation of neologisms. For instance, Crystal D. (2008), in his work A Dictionary of Linguistics and Phonetics, names affixation and compounding as two of the principal methods of word formation. Similarly, Plag (2003), in his book Word-Formation in English, provides a functional analysis of English affixes and demonstrates their active use in the field of ICT.

In Uzbek linguistics, the issues of forming ICT terminology have been extensively covered in the scholarly research of such linguists as A. Hojiyev, M. Asqarova, Sh. Rahmatullayev, D. Khojayev, Z. Rasulov, and N. Mahmudov. According to them, terms in the Uzbek language are mainly formed through derivational affixes, and this process fully corresponds to the internal laws of the national language. For example, in his work "O'zbek terminologiyasi masalalari" (Problems of Uzbek Terminology, 1985), A. Hojiyev emphasizes the importance of morphological derivation in enriching the terminological system and demonstrates the semantic potential of suffixes such as -chi, -lik, -lash, -tirish.

Furthermore, in the studies conducted by M. Asqarova and Sh. Rahmatullayev, the syntactic and lexical possibilities of word formation are also analyzed. In recent years, scholarly articles have been published by researchers such as Q. Qurbonov, N. Madrahimov, and D. Shomurodova on adapting ICT terms to the national language. In their works, they focus on issues of semantic equivalence, morphological adaptation, and phonetic conformity when translating English terms into Uzbek. For instance, English terms such as upload, download, reboot, software, hardware have been morphologically adapted into Uzbek as yuklash (upload), qayta yuklash (reboot), dasturiy ta'minot (software), apparat ta'minoti (hardware). In this process, the affixal system and word-formation rules of the Uzbek language are actively employed.

In addition, the morphological structure of ICT terms borrowed via Russian has also been modified in the course of their adaptation into Uzbek. For example, terms such as programma (program), kompyuter (computer), fayl (file) have found their place in the national terminological system as dastur, hisoblash mashinasi, and hujjat.

Numerous studies show that ICT terms in English are mainly created through compounding (the formation of new units on the basis of word combinations) and affixation, whereas in Uzbek derivational affixes serve as the primary means.

The analysis of the literature indicates that although the methods of term formation in English and Uzbek share certain similarities at the morphological level, their structural models differ. In English, the diversity of prefixes and suffixes, and in Uzbek, the agglutinative nature of the language, emerge as key factors in term formation.

In general, the analysis of existing literature shows that the morphological method is the most effective and scientifically grounded way of forming ICT terms. It not only brings the national terminology closer to the system of international terms, but also preserves the national identity of the language.

METHOD

The morphological method is the process of creating new lexical units, that is, terms, by adding various

affixes (prefixes or suffixes) to existing word stems in a language. This method is one of the main mechanisms for expanding the vocabulary of any language, including English and Uzbek. Terms formed through morphological derivation are usually semantically precise, structurally compact, and convenient for use in scientific discourse.

In English, morphological word formation is often carried out through affixation, that is, by means of prefixes (affixes added to the beginning of a word) and suffixes (affixes added to the end of a word). ICT terms created in this way are semantically very rich and diverse. For example:

• reboot — the prefix re- is added to the word boot (to load a computer), thereby forming the meaning "to load again, restart";

• decoder / encoder — the prefixes de- and en- and the suffix -er are added to the word code, producing the meanings "a device that decodes / encodes information";

• in terms such as uninstall, upload, download, overwrite, the prefix conveys the direction of the action or a negative meaning.

In addition, many ICT terms are formed with suffixes such as -tion, -er, -ing, -ment, -able:

• information, connection, installation, processing, development, accessible, removable, etc.

These suffixes mainly denote a process, state, or capability.

Unlike the morphological system of Uzbek, the morphological system of English is characterized by the active use of prefixes. Therefore, morphologically formed terms in English are usually expressed in a compact form and can convey a large amount of meaning through the semantic functions of various affixes.

In Uzbek, however, the main means of morphological derivation is derivational suffixes. Since Uzbek is an agglutinative language, several affixes can be added sequentially to a word stem, each performing a specific grammatical or semantic function. In this respect, Uzbek morphology provides wide possibilities for creating ICT terms in accordance with the internal rules of the national language.

For example, the following terms are formed morphologically:

• foydalanuvchi (foyda + lan + uvchi) — a person who uses a computer or software;

• yuklovchi (yukla + uvchi) — a program or user that uploads data;

• tarmoqlashtirish (tarmoq + lash + tirish) — the process of interconnecting networks;

• raqamlashtirish (raqam + lash + tirish) — the process of converting data into digital form.

As these examples show, terms created by the morphological method are structured in accordance with the internal system of the Uzbek language. They are semantically precise and morphologically based on the derivational rules of the language.

In addition, the semantic potential of derivational suffixes plays an important role in expressing new concepts in the field of ICT. For example, the suffix -chi is often used to denote a profession or an agent of an activity (dasturchi "programmer", foydalanuvchi "user", tarmoqchi "network specialist"); the suffix -lik is used to form abstract nouns (axborotlilik "informativeness", raqamli texnologiyalar "digital technologies"); while -lash, -tirish form verbs that denote processes (avtomatlashtirish "automation", raqamlashtirish "digitalization", integratsiyalash "integration").

In Uzbek, ICT terms formed through morphological derivation serve not only as a means of nationalizing borrowed terms, but also as a primary tool for expressing new scientific concepts. As a result of this process, such terms as "foydalanuvchi interfeysi" (user interface), "dasturiy ta'minot" (software), "ma'lumotlar bazasi" (database), "tarmoq xavfsizligi" (network security), and "bulutli texnologiyalar" (cloud technologies) have become integral components of Uzbek scientific terminology.

Thus, the morphological method is an important means of creating new ICT terms by making use of the internal resources of the language. This method enriches the national terminology, systematizes borrowed words, and makes it possible to harmonize them with international terminology.

ROLE OF THE PREFIXAL METHOD:

One of the important means of word formation in the language system is the prefixal method, that is, forming a new unit by adding prefixes to the beginning of a word which give it a new semantic nuance. In English, prefixes are an active part of the morphological system, and through them many new terms are created, especially in the field of technology and information and communication technologies (ICT).

The prefixal method plays an important role in expanding the meanings of new terms, clarifying their grammatical characteristics, and specifying their semantic features. Terms created by this method usually add additional meanings to the word such as negation, intensification, repetition, opposition, or direction.

For example, the following prefixes are widely used in ICT terminology in English:

• re- (gives the meaning of repetition, doing again): reboot, reload, reconnect, rewrite;

• de- (expresses opposition or removal): decode, debug, deactivate, decrypt;

• pre- (gives the meaning of "before, preliminary"): preinstall, preconfigure, predefine;

• sub- (expresses the meaning "below, lower-level"): subdomain, subnet, subsystem;

• multi- (gives the meaning of plurality): multimedia, multitasking, multicore;

• inter- (expresses mutual connection): internet, interconnect, interlink;

• auto- (expresses automaticity): autocorrect, autopilot, autocomplete;

• anti- (gives the meaning "against"): antivirus, antispyware;

• trans- (expresses transmission or transition): transfer, transmit, transcode.

All of these prefixes are actively used in ICT terms and serve to clearly express various stages, states, or functions of technological processes. For example, reboot means "to restart the computer," decode — "to decode/unlock the code," upload — "to upload," download — "to download," interconnect — "to interconnect."

The formation of terms by means of the prefixal method enriches the word-formation potential of the English language and, at the same time, makes it possible to express new concepts in a compact, precise and systematic form. This process is one of the main sources of ICT terminology, because in a period of rapid technological innovation there is a need for new terms that stand out for their simplicity and clarity in naming new phenomena and processes.

In Uzbek, however, the prefixal method in the classical sense does not exist, since the morphological structure of the language belongs to the agglutinative type. That is, new words are mainly formed by adding suffixes to the end of the word (the suffixal method). Nevertheless, when terms borrowed from English are adapted into Uzbek, their prefixal meanings are conveyed by semantic means.

For example:

• reboot → qayta yuklash ("re-" prefix is rendered through the word qayta "again");

• deactivate → faolsizlantirish (the prefix "de-" is conveyed through the base -siz "without");

• interconnect → o'zaro bog'lash ("inter-" is replaced by the word o'zaro "mutual");

• upload / download → yuklash / yuklab olish (the directional meanings of "up/down" are expressed through verb combinations).

This situation shows that the Uzbek equivalents of prefixal terms are reflected not morphologically, but through lexical-semantic means. In this way, the structural laws of the national language are preserved when adapting English prefixal models into Uzbek.

In linguistics, the role of the prefixal method is important not only from the morphological perspective, but also in terms of introducing semantic innovation. Most ICT terms denote complex activities such as restarting computer processes, transmitting, analyzing or protecting data. Therefore, prefixal structures have great importance as a means of clear and concise expression within the terminological system.

In Uzbek, the mechanism for translating prefixal models is specific: they are integrated into the national language system through semantic equivalents. This process serves not only to assimilate new terms, but also to adapt them to the system of the national language. For this reason, the role of the prefixal method is invaluable for introducing English terminology into Uzbek correctly, on a scientific basis, and in a stable form.

Other methods of word formation:

In addition to morphological and prefixal derivation, there are several other effective models in ICT terminology:

a) Composition (compounding).

In English, two or more independent words combine to form a new term: software, hardware, database, laptop, smartphone, firewall.

In Uzbek, this method is also widely used: axborot texnologiyasi (information technology), ma'lumotlar bazasi (database), tarmoq xavfsizligi (network security), raqamli aloqa (digital communication).

In these terms, the words semantically complement each other and express a new concept.

b) Conversion (change of word class)

In English, a noun can become a verb or vice versa: to email (to send an email), to google (to search), to message (to send a message).

In Uzbek, this meaning is expressed through word combinations:

email yuborish (to send an email), xabar jo'natish (to send a message).

c) Abbreviation

This is one of the most effective methods in ICT terminology:

IT (Information Technology), Wi-Fi (Wireless Fidelity), USB (Universal Serial Bus), AI (Artificial Intelligence), HTML (HyperText Markup Language).

In Uzbek, abbreviations are formed in two ways:

1. Fully adopting international abbreviations: IT, Wi-Fi, USB;

2. Creating local abbreviations: AKT (axborot-kommunikatsiya texnologiyalari – information and communication technologies), TATU (Toshkent axborot texnologiyalari universiteti – Tashkent University of Information Technologies).

CONCLUSION

The process of forming ICT terms in English and Uzbek is based on the grammatical and lexical systems of both languages. English is distinguished by the active use of prefixal, morphological and compositional models. Uzbek, in turn, employs its national word-formation system in the process of assimilating these terms and creates new terminology through compounding, affixation, and calquing. Thus, in the formation of ICT terminology, English functions as a source language, while Uzbek, as a recipient language, enriches its innovative lexical layer within its own possibilities. This process plays an important role in ensuring that national terminology develops in line with contemporary requirements.

REFERENCES

1. Hojiyev A. O'zbek terminologiyasi masalalari. — Toshkent: Fan, 1985.

2. Asqarova M. Hozirgi o'zbek adabiy tili. — Toshkent: O'qituvchi, 2005.

3. Rahmatullayev Sh. O'zbek tili leksikologiyasi. — Toshkent: O'zbekiston, 1999.

4. Rasulov Z. Til va terminologiya: nazariy va amaliy masalalar. — Toshkent, 2010.

5. Qurbonov Q. Axborot-kommunikatsiya texnologiyalari terminlarini o'zbek tiliga moslashtirish muammolari. — "Filologiya masalalari" jurnali, 2020.

6. Madrahimov N. Zamonaviy terminologiya va tarjima muammolari. — Toshkent: Universitet nashriyoti, 2021.

7. Shomurodova D. Inglizcha AKT terminlarining o'zbek tilidagi semantik transformatsiyasi. — Toshkent, 2022.

8. Karimova S. Til va texnologiya o'zaro ta'siri. — "Tilshunoslik" jurnali, №2, 2023.

9. Wüster E. Internationale Sprachnormung in der Technik. — Vienna, 1931.

10. Rey A. Essais de terminologie générale. — Paris: Presses Universitaires de France, 1979.

11. Crystal D. A Dictionary of Linguistics and Phonetics. — Oxford: Blackwell Publishing, 2008.

12. Plag I. Word-Formation in English. — Cambridge University Press, 2003.

13. Hoffmann L. Kommunikationsmittel Fachsprache. — Berlin: Akademie Verlag, 1985.

14. Leichik V. M. Terminovedenie: predmet, metody, struktura. — Moskva: LKI, 2007.

15. Shelov S. D. Termin i ponyatie v terminologicheskih issledovaniyah. — Moskva, 2012.

16. Booij G. The Grammar of Words: An Introduction to Linguistic Morphology. — Oxford University Press, 2018.

17. Yule G. The Study of Language. — Cambridge University Press, 2017.IATE - InterActive Terminology for Europe (2023). European Union Terminology Database. [Online] Available at: https://iate.europa.eu

18. TermWiki (2023). Multilingual Technical Terminology. [Online] Available at: https://www.termwiki.com

19. TechTerms (2023). Comprehensive ICT Terminology Resource. [Online] Available at: https://techterms.com