CALQUING, TRANSLITERATION AND DESCRIPTIVE TRANSLATION OF ENGLISH TERMS IN THE UZBEK LANGUAGE

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Abstract: The article examines the major strategies used to render English terminology in modern Uzbek, focusing on three productive methods: calquing, transliteration, and descriptive translation. The relevance of the study is determined by the rapid development of information technologies, artificial intelligence, digital economy, engineering, and other professional domains in which English functions as a major source of new terminology. The aim of the research is to identify the functional and semantic characteristics of calquing, transliteration, and descriptive translation in the formation and use of English-Uzbek terminological equivalents. The study employs comparative, descriptive, semantic, and contextual methods. The research material includes English general and specialized terms actively used in contemporary scientific, technical, digital, and professional communication and their Uzbek equivalents. The analysis demonstrates that calquing is particularly effective when the structural and semantic model of an English term can be naturally reproduced in Uzbek.

Keywords: terminology, English, Uzbek, translation studies, calquing, transliteration, descriptive translation, borrowing, terminological equivalence, English-Uzbek translation

Introduction. The modern development of science and technology is accompanied by the rapid renewal of professional vocabulary. This process is particularly evident in the fields of information technology, artificial intelligence, robotics, telecommunications, digital economy, medicine, and engineering. A significant proportion of new concepts emerges or become internationally widespread through the English language. As a result, English terminology is actively entering languages that are not the source languages of the corresponding innovations.

This process is of particular importance for the Uzbek language. The expansion of international scientific cooperation, the digitalization of education, the increasing dissemination of English-language academic publications, and the development of information technologies have resulted in the continuous emergence of new English terms in Uzbek professional communication.

When translating English terminology, a translator faces not only the problem of finding a dictionary equivalent. A term represents the linguistic designation of a

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particular concept within a specific professional system. Therefore, its translation involves establishing correspondence between two conceptual and linguistic systems.

Particular attention should be paid to three strategies: calquing, transliteration, and descriptive translation. These strategies provide different ways of solving the same translation problem. Calquing attempts to reproduce the internal structure of the source unit; transliteration preserves its graphic form or an adapted representation of it; while descriptive translation conveys the meaning of the term through a phrase or explanatory construction.

The relevance of the study is determined by the need for a systematic investigation of these methods of transferring English terms into Uzbek and for identifying the conditions under which each strategy can be effectively applied.

The aim of the study is to identify the specific characteristics of calquing, transliteration, and descriptive translation in rendering English terms into Uzbek.

To achieve this aim, the following objectives have been formulated:

1. to define the linguistic nature of calquing, transliteration, and descriptive translation;
2. to identify the main structural and semantic characteristics of their use;
3. to compare English terms with their Uzbek equivalents;
4. to determine the advantages and limitations of each strategy;
5. to establish the factors that influence the choice of a particular translation solution.

The object of the research is English terms and their Uzbek equivalents.

The subject of the research comprises the translation and linguistic mechanisms involved in transferring English terms through calquing, transliteration, and descriptive translation.

The methodological framework of the study is based on comparative, descriptive, semantic, and contextual methods. The comparative approach makes it possible to identify structural differences between English and Uzbek terminological units, while semantic analysis helps determine the degree of correspondence between the meanings of source and target terms.

Materials and methods. The research material consists of English terms and their Uzbek equivalents belonging primarily to scientific, technical, digital, computer-related, and professional vocabulary. The selection of such units is motivated by the fact that English is one of the most productive sources of new terminology in these fields.

The following methods were employed in the study.

1. Descriptive method. This method was used to identify the linguistic characteristics of the terms under investigation and to describe the ways in which they are transferred into Uzbek.

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2. Comparative method. The comparative method made it possible to compare the structures of English terms with their Uzbek equivalents and to identify similarities and differences between them.

3. Semantic analysis. This method was used to determine the degree to which the meaning of an English term is preserved when transferred into Uzbek.

4. Contextual analysis. Contextual analysis was applied to determine whether a translated term corresponds adequately to the meaning of the original term in a particular professional context.

5. Elements of terminological analysis. Particular attention was paid to such characteristics as conciseness, unambiguity, systematicity, semantic transparency, and the degree of adaptation of borrowed units to the norms of the Uzbek language.

Thus, the translation of terminology requires consideration of both linguistic form and conceptual content.

Results. *Calquing as a method of rendering English terminology*

Calquing is a translation strategy in which the structure of a source-language term is reproduced through corresponding elements of the target language. Unlike mechanical word-for-word translation, calquing involves the creation of a new expression using the resources of the receiving language.

Calquing is particularly effective when translating multi-component terms whose structure is transparent and which do not contain strongly culture-specific elements.

For example:

English term	Uzbek equivalent	Method
artificial intelligence	sun’iy intellekt	calquing
machine learning	mashinaviy o‘qitish	calquing
cloud computing	bulutli hisoblash	calquing
digital economy	raqamli iqtisodiyot	calquing
neural network	neyron tarmoq	calquing
data processing	ma’lumotlarni qayta ishlash	calquing/descriptive-calque model
information security	axborot xavfsizligi	calquing

Calquing has an important advantage: it makes it possible to create a term that is understandable to speakers of the target language without requiring knowledge of English.

For example, the English combination *artificial intelligence* consists of the components *artificial* and *intelligence*. The Uzbek expression *sun’iy intellekt* conveys the semantic structure of the original through elements belonging to the Uzbek terminological system. A similar process can be observed in *digital economy* → *raqamli iqtisodiyot*. The semantic relationship between the modifying and modified components is preserved. Therefore, calquing should not be viewed as mechanical

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word-for-word copying but rather as the structural and semantic adaptation of a source terminological unit.

Transliteration of English Terms in Uzbek. The second widely used method is transliteration. In the broad context of translation studies, transliteration refers to the transfer of the graphic form of a foreign-language unit by means of the alphabet of the target language. Transliteration is particularly common in fields where a large number of terms have an international character.

Examples include:

English term	Uzbek usage	Characteristic
internet	internet	international borrowing
robot	robot	established borrowing
scanner	skaner	graphically adapted borrowing
server	server	borrowing
browser	brauzer	adapted borrowing
modem	modem	borrowing
monitor	monitor	borrowing
chatbot	chatbot / chat-bot	new technological borrowing

The main advantage of transliteration is the preservation of the international recognizability of a term. This is particularly important in scientific and technical communication, where specialists from different countries need to identify the same concept. However, excessive use of transliteration may increase the number of foreign elements in Uzbek terminology. Such vocabulary may be readily understood by specialists but may remain semantically opaque to students and general users who are not familiar with English.

Thus, a certain tension arises between international recognizability and national comprehensibility. For example, the use of the international term *server* may be justified in professional computer discourse. However, when a new and complex term is first introduced in an educational text, it may be appropriate to provide an explanation. Transliteration can therefore be combined with explanatory translation:

server - сервер, яъни тармоқда маълумот ва хизматларни тақдим этувчи қурилма ёки дастурий тизим.

Such a strategy is particularly useful in educational and popular-scientific discourse.

Descriptive Translation. Descriptive translation is used when an English term has no concise and established equivalent in Uzbek or when direct transfer does not provide sufficient semantic accuracy.

The essence of this method lies in explaining the content of a concept through a phrase or an explanatory construction.

For example:

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English term	Possible descriptive translation
firewall	компьютер тармоғини ҳимоя қилувчи дастурий восита
wearable technology	инсон танасига тақиб ишлатиладиган технология
cloud computing	интернет орқали масофавий ҳисоблаш ресурсларидан фойдаланиш технологияси
machine vision	компьютер ёрдамида объектларни визуал аниқлаш технологияси
smart home	автоматлаштирилган бошқарув тизимига эга уй
deep learning	кўп қатламли нейрон тармоқлар асосида маълумотни чуқур ўрганиш усули

Descriptive translation has an obvious advantage -semantic transparency. The recipient of the text can understand the essence of the concept even without specialized terminological knowledge.

For example, the English term *firewall* is relatively compact. Its transliterated form *firewall* or an adapted form such as *фаервол* preserves the original term but does not explain its meaning to an unprepared reader.

Thus, there is a certain balance between conciseness and explanatory value:

transliteration → conciseness + international recognizability;

calquing → structural transparency + national adaptation;

descriptive translation → maximum explanatory value + greater length.

Descriptive translation is therefore particularly useful for new technological terms and concepts for which a stable concise equivalent has not yet developed in Uzbek.

Comparative characteristics of the three methods

The analysis allows the main characteristics of the three strategies to be summarized as follows:

Criterion	Calquing	Transliteration	Descriptive translation
Preservation of the original form	partial	high	low
Preservation of structure	high	low	variable
Comprehensibility for Uzbek speakers	high when the calque is successful	medium	high
Conciseness	high/medium	high	low
International recognizability	medium	high	low
Suitability for new terms	high	high	high
Risk of semantic inaccuracy	medium	medium	low
Terminological economy	high	high	low

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The three strategies therefore perform different functional tasks.

Calquing is appropriate when the meaning of an English term can be adequately conveyed through the resources of Uzbek.

Transliteration is preferable for international terms and lexical units that are already actively used in professional communication.

Descriptive translation is necessary when no established equivalent exists, when the semantic structure of the term is complex, or when its meaning needs to be made accessible to a non-specialist audience.

Discussion. The results demonstrate that the translation of English terminology into Uzbek is a multidimensional process involving both linguistic and extralinguistic factors. The first factor is the degree of assimilation of a term. If an English unit is already widely used in Uzbek professional communication, transliteration may gradually develop into an established borrowing.

The second factor is the structure of the source term. Semantically transparent multi-word combinations are more likely to allow calquing, whereas terms with idiomatic or metaphorical meanings require a more careful approach.

The third factor is the degree of terminological novelty. New terms, particularly those emerging in artificial intelligence, digital technologies, and robotics, often initially appear in English. At the early stage of their dissemination, transliteration may be used, followed by the development of a calque or a national equivalent.

The fourth factor is the target audience. The use of international terms may be acceptable in a scientific publication intended for specialists, whereas educational materials for students may require a combination of a term and a brief explanation.

The fifth factor is the need for terminological standardization. The same English term should not be unnecessarily translated by several different variants within the same professional field. Thus, contemporary Uzbek terminology requires consistency, semantic accuracy, and contextual appropriateness.

An important aspect is the distinction between a translation strategy and the result of linguistic development. For example, the initial transliteration of an English term may gradually become a fully integrated element of Uzbek professional vocabulary. In such a case, the unit is no longer perceived merely as a translation but becomes part of the national terminological system.

Another important issue concerns competition between several variants. A single English term may simultaneously have a transliterated, calqued, and descriptive equivalent. This phenomenon is especially characteristic of rapidly developing fields in which terminology is still being formed.

Therefore, the translation of English terminology should be viewed as a dynamic process of establishing equivalence, rather than as a simple replacement of one linguistic unit by another.

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Main problems and possible solutions. The analysis makes it possible to identify several major problems.

Absence of a direct equivalent. Uzbek does not always have a ready-made term for newly emerging concepts. In such cases, transliteration, calquing, or descriptive translation may be employed.

Terminological variation. A single concept may be represented by several variants. This creates difficulties for scientific communication and terminology management.

Excessive use of transliteration. If all new English terms are transferred without translation, this may make specialized texts more difficult to understand.

Unsuccessful calquing. Literal reproduction of English structures may violate Uzbek linguistic norms or produce semantically unnatural combinations.

Excessive descriptiveness. Although descriptive translation ensures clarity, excessively long definitions are inconvenient in scientific communication and make the terminology less economical.

To address these problems, it is advisable to follow several principles:

- consider the semantics of a term rather than only its formal structure;
- verify the compliance of the translation with Uzbek linguistic norms;
- take the professional context into account;
- distinguish international terms from terms for which a national equivalent can be created;
- when introducing a new term for the first time, combine the term with a brief explanation;
- maintain terminological consistency within a particular scientific field;
- take existing terminological usage into consideration;
- use electronic terminology databases and bilingual corpora when selecting equivalents.

Thus, the most effective approach is not the automatic selection of a single method but rather a combined strategy based on the characteristics of each particular term.

Conclusion. The study demonstrates that calquing, transliteration, and descriptive translation are among the most important methods of transferring English terminology into modern Uzbek. Calquing contributes to the creation of nationally adapted terms and is particularly effective for semantically transparent word combinations. It makes it possible to preserve the conceptual structure of the source term while employing the lexical and grammatical resources of Uzbek.

Therefore, the choice between calquing, transliteration, and descriptive translation should be determined not only by the formal characteristics of the English

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term but also by its semantics, degree of dissemination, professional context, intended audience, and the current state of the Uzbek terminological system.

Overall, the development of modern Uzbek terminology requires a balance between international scientific communication and the internal resources of the national language. The combination of calquing, transliteration, and descriptive translation provides an opportunity for the flexible and functionally appropriate integration of English terminology into Uzbek.

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