

Transformation Of The Language System Under The Influence Of Information Technologies

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Abstract: This article analyzes the interplay between information technology concepts and language, as well as the linguistic problems that arise in this area and the reasons for their emergence.

Keywords: Information, technology, language, linguistics, language studies, problem, concept, term, e-mail, login, platform.

Introduction: In the modern world, it is difficult to imagine human life without information technologies. As various types of technologies proliferate, we observe that their names are presented in diverse ways. Finding Uzbek equivalents for such names is one of the primary tasks. Consequently, the connection between information technologies and language has been growing day by day. Identifying their equivalents and counterparts is entering linguistics as a linguistic problem.

The rapid development of information technologies (IT) is exerting a significant influence on nearly all spheres of 21st-century society, especially on language and linguistics. Tools such as internet technologies, mobile applications, and machine translation systems are shaping not only new forms of communication but also new lexical units, syntactic constructions, and stylistic trends. In the course of analyzing social networks and various scholarly articles, it becomes evident that the flow of information is penetrating ever more intensely. This creates a need to explore new methods of storing, presenting, formalizing, regulating, and processing such data. For this reason, there is growing interest in comprehensive knowledge bases that can be used for various practical purposes. Taking these factors into account, assimilating the language that enters through information technologies is falling on the shoulders of people of all ages, which in turn gives rise to linguistic problems.

Concepts of information technology occupy an

important place at the intersection of modern linguistics and IT. The rapid development of these technologies directly and indirectly affects human language. New branches have emerged in linguistics—such as computational linguistics, corpus linguistics, and natural language processing with the help of artificial intelligence—posing fresh challenges for linguists. These changes generate not only scholarly but also practical issues, including those related to translation systems, automatic speech recognition, and the development of linguistics-oriented software.

Today, when we analyze the software created for mobile devices and computer technologies, we see that newly translated terms, expressions, and modes of communication are entering Uzbek directly and without barriers. On the one hand, this process contributes to the enrichment of the language; on the other hand, it also brings forth linguistic problems. Among the key issues for linguists to resolve are optimizing terminology, improving the quality of user-interface language localization, and ensuring phonetic and syntactic compatibility. In particular, the lack of unified and consistent forms for IT-related concepts in Uzbek remains a pressing problem. Identifying the linguistic problems that arise from the interaction between information technologies and language, and proposing solutions to them, is the responsibility not only of linguists but of all citizens who are accountable for the Uzbek language.

The rapid pace of IT development has, first and

foremost, altered the form of human communication. Initially, e-mail, and later open forums, blogs, social networks, messengers, and AI-based assistive applications enabled new modes of interaction. This has affected language both structurally and functionally. Natural language, as used by humans, has begun to adapt to the artificial digital environment, assimilating new lexical, morphological, and pragmatic elements.

Taking into account that ICT concepts began entering Uzbekistan rapidly in the early 21st century, an explanatory dictionary was developed under the joint “Digital Development Initiative” program between the United Nations Development Programme and the Government of our Republic, in cooperation with the Coordinating Council for computerization and the development of information and communication technologies and the Uzbekistan Agency for Communication and Informatization. The dictionary was intended to promote the widespread adoption of information and communication technologies in the Republic of Uzbekistan. The “Explanatory Dictionary of ICT” brings together definitions and explanations for more than 3,000 terms and concepts related to information and communication technologies, as well as a large amount of supplementary information used in this field, presented as appendices. The second edition of this dictionary was published in 2014.

Although this dictionary, whose definitions are provided, served as an initial source forming the basis for the entry of ICT terminology into Uzbek, considering that its editions were published in 2004 and 2014—periods when only older Pentium III and IV computers were in use in our country, the Android operating system on mobile devices had not become widespread, social networks and messengers had not yet entered daily life, and, most importantly, artificial intelligence technologies had not emerged—the need to revisit ICT concepts reappeared more than 10 and 20 years later.

There are many scholars, both worldwide and in our country, conducting scientific and practical work in this area. Foreign researchers working on IT terminology and translation mainly conduct studies in the fields of computational linguistics, technical translation, terminology management, AI-based machine translation systems, and the standardization of IT terms. Scholars from the United States, Germany, Belgium, and Denmark—such as S. E. Wright [2;31], K. D. Schmidt, R. Timmerman [3;31], P. Faber [;269], H. J. Kockaert [5;203], and A. L. Jakobsen [6;91]—are researching the creation of terminological databases, the conceptual analysis of IT terminology, and areas within cognitive terminology, including frame-based terminology.

Among Uzbek linguists, scholars such as B. Mengliyev, N. Abdurahmonova, D. Rustamov, A. Ataboyev, Sh. Hamroyeva, Sh. Gulyamova, A. Eshmo‘minov, O‘. Kholyorov, and J. Ibragimov have been conducting a series of studies in computational linguistics and corpus linguistics.

In one respect, IT (AT) concepts differ from ICT (AKT) concepts: IT is oriented toward working with information, whereas ICT also encompasses communication tools; IT deals with systems, software, and data, while ICT includes the internet, mobile communications, and network technologies. Overall, both contribute to enriching the Uzbek language with lexical units.

Although the concept of information technology was initially linked only to computing hardware, today it has a broad meaning, encompassing computer systems, software tools, networks, artificial intelligence systems, databases, and cloud services. IT includes not only the technological infrastructure but also the methodological foundations of information management. Modern information technologies enable complex operations such as information analysis, modeling, forecasting, and visualization. In particular, artificial intelligence, machine learning, big data, and digital transformation technologies are among the most important directions developing within IT.

IT includes the following key elements:

- Hardware (computers, servers, devices);
- Software (operating systems, applications, databases);
- Tools for processing and storing information;
- Network infrastructures (LAN, WLAN, internet);
- User interface (visual and interactive environments).

The impact of information technologies on language is not limited to the emergence of new words. On the contrary, this process gives rise to complex issues at various levels of the language system—phonetic, lexical, morphological, syntactic, semantic, and stylistic.

In the process of entering the language, concepts related to information technologies are usually adopted directly from English or through phonetic adaptation. For example, words such as computer, internet, online, offline, application, website, chat, file, browser, and download are widely used in contemporary Uzbek. Most of these units do not have Uzbek equivalents, or where equivalents exist, they are pronounced and written without adhering to language norms. As a result, two different approaches are

emerging within the language system. For instance, there is a discrepancy between the pronunciation and orthographic rendering of the Microsoft Windows operating system, which is part of computer software. Since the letter “w” does not exist in the Uzbek alphabet, orthography requires it to be written with the letter “v”; however, in pronunciation it is not articulated as the labiodental “v.” In addition, the term login is sometimes rendered as kirish (“entry/access”) and sometimes retained as login. This leads to violations of norms in the general language.

In our view, the root cause of the above problems is the lack of a systematic approach in the field of terminology that is grounded in sufficient scholarly foundations. Many technological terms have not yet been included in official dictionaries. This, in turn, leads specialists working in education, science, journalism, programming, and technological fields to express the language in divergent ways. As one example, consider the term platform. Depending on the field, this term can be used to mean foundation, venue, system, or software tool. Such polysemy gives rise to misunderstandings in scholarly communication.

As noted above, the entry of information-technology concepts also inevitably affects computational linguistics and language technologies. The development of computational linguistics and the proliferation of language-processing systems based on artificial intelligence and machine learning have led to the technological analysis of language. For example, morphological analyzers, syntactic parsers, and semantic analysis tools have long been developed for major languages. Uzbek, however, does not yet have a fully digitized form in this respect. Because the language’s machine-readability is low, many technological applications (machine translation, speech recognition, chatbots) do not operate effectively in Uzbek. Moreover, language-specific characteristics—such as agglutination, relatively free word order, and phonetic variation—further exacerbate the technical challenges.

In Uzbek, the standardization of IT-related terminology has not yet been put on a consistent footing. At present, words with the same function are interpreted differently across social networks and apps. For example, the word profile is translated as profil, shaxsiy sahifa (“personal page”), or even foydalanuvchi interfeysi (“user interface”). The term settings appears as sozlamalar, sozlash, or parametrlar. This situation indicates that the terminological base and the system of interlingual harmonization in Uzbek are still weakly developed. The lack of linguistic consistency complicates the use of technological tools and creates ambiguity between specialists and users across fields.

At the same time, full integration of the Uzbek language into machine translation systems has not yet been achieved. Google Translate, DeepL, and other popular MT systems produce grammatical, stylistic, and semantic errors in Uzbek. This is especially evident when translating technical texts and IT-related materials. For example, the English multi-component phrase “Cloud storage automatically synchronizes your files” is best rendered in Uzbek as “Bulutli xotira fayllaringizni avtomatik sinxronlashtiradi.” However, automatic systems may output something like “Bulut saqlash avtomatik ravishda sizning fayllaringizni sinxronlashtiradi,” which is awkward and grammatically odd. Such cases lead to semantic vagueness, structural distortions, and technical errors. The main reason for these mistakes lies in the way Uzbek expresses number, possession, tense, and other grammatical categories morphologically. To teach such structures correctly to AI systems, a large-scale corpus, fully developed morphological analyzers, and a high-quality database of parallel texts are required—resources that are still in the development stage.

During observations, we also found problems in the language used for translations in user interfaces of mobile apps and software tools. Translations in these sections are often incorrect, unclear, or machine-translated. This complicates the user’s interaction with the interface. For example, the button “Reset settings” is translated in some programs as sozlamalarni tiklash (“restore settings”), while in others it appears in a vague, hybrid form like nastroykani qayta qo’yish. The main reason is the lack of involvement of professional linguists. As a result, users experience confusion and misunderstandings. In many programs, the localization process lacks terminological consistency and coherence derived from the intended meaning.

Technological terms do not always fit the morphological system of Uzbek. The word stream borrowed from English is translated as oqim. However, hybrid forms like stream qilish (“to stream”) or stream qilyapman (“I am streaming”) violate morphological rules in the language. As such usages proliferate, they lead to the incorrect formation of new suffixes and affixoids in Uzbek.

The impact of information technologies on the language of society is strong and complex; addressing this issue is an urgent task that must be solved through the collaboration of not only linguists but also translators, programmers, educators, and policymakers. Adapting IT-related concepts into Uzbek in a consistent, logical manner that aligns with phonetic and morphological norms plays an important role in ensuring linguistic stability.

It is also possible to enhance the language's technological potential by conveying the language of IT to the younger generation in Uzbek in a clear, precise, and scientifically grounded way, and by introducing courses in technolinguistics into curricula.

CONCLUSION

In conclusion, the interaction between information technologies and language is not only a linguistic issue, but also a social, cultural, and political one. Addressing this problem requires a synthesis of scholarly approaches, national interests, and international experience. Ensuring that the Uzbek language finds its place in the digital world while preserving its national identity amid technological progress is one of our most important tasks.

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