

BUILDING BILINGUAL TERMINOLOGY FOR EMERGING FIELDS: TRANSLATION CHALLENGES AND SOLUTIONS

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Annotation: This article explores the process of building bilingual terminology in emerging fields such as information technology, ecology, genetics, and transport. It analyzes the linguistic, cultural, and practical challenges translators face when developing consistent and accurate terminology in under-resourced languages like Uzbek. By applying principles from terminology science and translation theory, including descriptive, functional, and Skopos-based approaches, the paper outlines key strategies for term formation, standardization, and localization. Real examples from IT, genetic engineering, and green transport illustrate both successful practices and common pitfalls. Recommendations for institutional collaboration, digital termbase development, and translator training are also provided.

Keywords: bilingual terminology, emerging fields, term standardization, localization, translation strategies, Uzbek language

Annotatsiya: Ushbu maqolada axborot texnologiyalari, ekologiya, genetika va transport kabi yangi rivojlanayotgan sohalarida ikki tilli terminologiyani shakllantirish jarayoni o'rganiladi. O'zbek tilida terminlarni yaratishda tarjimonlar duch keladigan lingvistik, madaniy va amaliy muammolar tahlil qilinadi. Terminologiya ilmi va tarjima nazariyasi — xususan, funksional, tavsifiy va Skopos yondashuvlari asosida, maqolada termin yaratish, standartlashtirish va moslashtirish strategiyalari tavsiya qilinadi. IT, genetik muhandislik va yashil transport sohalaridan real misollar keltiriladi. Shuningdek, institutlararo hamkorlik, raqamli termin bazalari va tarjimonlar malakasini oshirish bo'yicha tavsiyalar beriladi.

Kalit so'zlar: ikki tilli terminologiya, yangi sohalar, terminlarni standartlashtirish, moslashtirish, tarjima strategiyalari, o'zbek tili

Аннотация: В статье рассматривается процесс создания двухъязычной терминологии в таких новых отраслях, как информационные технологии, экология, генетика и транспорт. Анализируются лингвистические, культурные и практические трудности, с которыми сталкиваются переводчики при формировании точной терминологии на таких языках, как узбекский. На основе теорий терминоведения и перевода, включая функциональные, дескриптивные и скопосные подходы, в статье предлагаются стратегии формирования, стандартизации и локализации терминов. Приводятся реальные примеры из ИТ, геной инженерии и экологического транспорта. Также даны рекомендации по институциональному сотрудничеству, созданию цифровых баз терминов и обучению переводчиков.

Ключевые слова: двухъязычная терминология, новые отрасли, стандартизация терминов, локализация, переводческие стратегии, узбекский язык

Emerging fields such as **information technology (IT)**, **genetics**, **ecology**, and **transport engineering** are rapidly evolving and producing vast quantities of specialized terminology. The translation and standardization of such terms into less-resourced languages like **Uzbek** present numerous challenges, including **lexical gaps**, **cultural mismatches**, and **lack of standardized equivalents** [1, p. 34].

Building bilingual terminology is not a mere act of word-for-word translation; it requires a comprehensive understanding of **terminological theory**, **subject expertise**, and **linguistic equivalence**.

Theoretical Background

Terminology work is supported by key theoretical foundations. Eugen Wüster's **general theory of terminology** emphasizes univocity and standardization [2, p. 17]. Later scholars like Christiane Nord (Skopos theory) and Peter Newmark highlighted the need for functional equivalence and communicative adequacy [3, p. 72].

Bilingual term building often faces issues of:

- **Conceptual mismatch:** One concept in the source language may not exist in the target language.
- **Cultural untranslatability:** Some terms are culture-bound realia.
- **Inconsistent usage:** Different translations for the same term in different contexts.

Real Examples from Emerging Fields

Field	English Term	Uzbek Equivalent	Issue Noted
IT	Cloud Computing	Bulutli hisoblash	Metaphorical → literal
Ecology	Greenhouse Gas	Issiqxona gazi	Borrowed calque
Genetics	Gene Editing	Genlarni tahrirlash	Recently coined
Transport	Autonomous Vehicle	Avtonom transport vositasi	Still not standardized

In the Uzbek context, many terms are translated **descriptively** rather than adopted as neologisms. For instance, "artificial intelligence" is rendered as "**sun'iy intellekt**", which is an adequate but broad translation.

Terminology Formation Strategies

Scholars such as Cabré and Picht have suggested methods for term creation:

- **Borrowing** (e.g., *klonlash* from *cloning*)
- **Calque** (e.g., *ochiq manba dasturiy ta'minot* for *open-source software*)
- **Neologism** (e.g., *genetika muhandisligi*)
- **Descriptive translation** (e.g., *ekologik toza transport*) [4, p. 88]

The **functional approach**, as proposed by Nord, emphasizes the communicative goal of the term in the target culture [5, p. 19].

Challenges in the Uzbek Context

Institutional Fragmentation- Different organizations use different terms for the same concept due to lack of a central regulatory body.

Lack of Translator Training- Many translators lack formal training in **scientific and technical fields**, leading to improvised and inconsistent term creation.

Digital Resource Scarcity- Few Uzbek-language termbanks or bilingual corpora are available for translator use [6, p. 44].

Solutions and Best Practices

1. **Establish a National Terminology Board:** Coordinated efforts between universities, ministries, and research centers.

2. **Develop Digital Termbases:** Crowdsourced or institutionally maintained databases can improve access and consistency.

3. **Foster Interdisciplinary Translator Education:** Combining linguistic skills with field-specific knowledge (IT, ecology, genetics).

4. **Adopt ISO Terminology Standards:** Use frameworks like ISO 704 for terminology principles [7, p. 27].

Creating bilingual terminology for emerging fields is both a **linguistic necessity** and a **strategic national investment**. In the Uzbek context, the combination of **standardization, localization, digital support, and human expertise** is key to building terminologies that are accurate, functional, and sustainable.

Only through collaboration between translators, field experts, and institutions can we ensure that Uzbek keeps pace with global scientific discourse.

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