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IT VOCABULARY AS A COMPONENT OF PROFESSIONAL DIGITAL COMMUNICATION

ІТ ЛЕКСИКА ЯК КОМПОНЕНТ ПРОФЕСІЙНОЇ ЦИФРОВОЇ КОМУНІКАЦІЇ

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The article investigates information technology vocabulary as a key component of professional digital communication in the context of rapid digitalization of society and the globalization of the IT sector. The relevance of the study is determined by the growing role of information technologies in all areas of professional activity, which requires specialists to possess not only advanced technical knowledge but also a high level of linguistic, terminological, and communicative competence. Particular attention is paid to substantiating the significance of specialized IT vocabulary in ensuring accuracy, logical coherence, clarity, and effectiveness of professional communication among industry specialists in digital environments, as well as in interdisciplinary and intercultural interaction.

Based on the analysis of contemporary linguistic and pedagogical research, the article examines the structural, semantic, and functional features of IT vocabulary, including terminological units, abbreviations, neologisms, and complex multi-component denominations. The place of IT lexis within the system of professional discourse is identified, and its role in shaping professional identity, professional culture, and standards of digital communication is determined. Special attention is devoted to the challenges of acquiring specialized vocabulary in multilingual and intercultural professional environments, particularly those related to the rapid pace of terminological renewal, the dominance of English as the primary language of professional communication, and the lack of standardized equivalents in national languages.

The methodological framework of the study is based on general scientific methods of analysis and synthesis, descriptive and discourse analysis, as well as elements of a comparative approach. The article emphasizes the necessity of systematic and purposeful development of IT lexical competence within higher education institutions and professional development programs, taking into account the demands of the contemporary labor market. It is concluded that proficiency in professional IT vocabulary constitutes an integral component of digital communicative competence, an important factor of effective professional performance, and a prerequisite for the successful integration of specialists into the global digital space.

Key words: information technology, IT vocabulary, professional digital communication, specialized terminology, professional discourse, English for Specific Purposes, digital competence, intercultural communication, IT education.

У статті досліджується лексика інформаційних технологій як ключовий компонент професійної цифрової комунікації в умовах стрімкої цифровізації суспільства та глобалізації ІТ-сфери. Актуальність дослідження зумовлена зростаючою роллю інформаційних технологій у всіх сферах професійної діяльності, що потребує

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від фахівців не лише глибоких технічних знань, а й високого рівня мовної, термінологічної та комунікативної компетентності. Особливу увагу приділено обґрунтуванню значення спеціалізованої ІТ-лексики у забезпеченні точності, логічності, зрозумілості та ефективності професійного спілкування між фахівцями галузі в цифровому середовищі, а також у процесі міждисциплінарної та міжкультурної взаємодії.

На основі аналізу сучасних лінгвістичних і педагогічних досліджень розглянуто структурні, семантичні та функціональні особливості ІТ-лексики, зокрема термінологічні одиниці, аббревіатури, неологізми та складні багатокомпонентні найменування. Визначено місце ІТ-лексики в системі професійного дискурсу та її роль у формуванні фахової ідентичності спеціалістів, професійної культури та стандартів цифрової комунікації. Особливу увагу приділено проблемам засвоєння спеціалізованої лексики в умовах багатомовного та міжкультурного професійного середовища, зокрема труднощам, пов'язаним із швидкими темпами оновлення термінології, домінуванням англійської мови як мови професійного спілкування та відсутністю усталених відповідників у національних мовах.

Методологічну основу дослідження становлять загальнонаукові методи аналізу й синтезу, описовий та дискурсивний аналіз, а також елементи порівняльного підходу. У статті наголошується на необхідності системного та цілеспрямованого формування ІТ-лексичної компетентності в закладах вищої освіти та в програмах підвищення кваліфікації фахівців ІТ-галузі з урахуванням потреб сучасного ринку праці. Зроблено висновок, що володіння професійною ІТ-лексикою є невід'ємною складовою цифрової комунікативної компетентності, важливим чинником ефективної професійної діяльності та запорукою успішної інтеграції спеціалістів у глобальний цифровий простір.

Ключові слова: інформаційні технології, ІТ-лексика, професійна цифрова комунікація, спеціалізована термінологія, професійний дискурс, англійська мова для спеціальних цілей, цифрова компетентність, міжкультурна комунікація, ІТ-освіта.

Problem Statement. The development of digital technologies has fundamentally transformed professional communication in the twenty-first century. Information technology has become not only a specialized professional field but also a universal infrastructure supporting economic, educational, medical, and social systems. In this context, communication within the IT domain increasingly relies on a specific set of lexical units that differ significantly from general language vocabulary. These lexical units form what is commonly referred to as IT vocabulary.

The relevance of studying IT vocabulary lies in the fact that modern IT professionals operate in global digital environments where English functions as the primary language of communication. Project documentation, software specifications, user manuals, technical reports, code comments, and online collaboration platforms all require precise lexical choices. Inadequate knowledge of IT terminology may lead to misunderstandings, incorrect system implementation, security vulnerabilities, and reduced efficiency of teamwork.

Furthermore, the rapid evolution of technology leads to continuous lexical innovation. New terms emerge alongside technological advancements, while existing words acquire new meanings. As a result, IT vocabulary represents a dynamic and constantly expanding subsystem of the English language, which requires systematic linguistic analysis and pedagogical attention. This makes the problem of IT vocabulary development highly актуальною both from a linguistic and an educational perspective.

Analysis of Recent Research and Publications. Recent linguistic research has increasingly focused on professional discourse and specialized vocabulary within the framework of English for Specific Purposes (ESP). Scholars emphasize that specialized vocabulary plays a crucial role in professional identity formation, knowledge transmission, and effective communication in domain-specific contexts. One of the foundational contributions to this field was made by Averil Coxhead, whose concept of discipline-specific lexis demonstrated that technical vocabulary differs significantly from both general and academic vocabulary due to its restricted context of use, high semantic precision, and close connection to professional practices. Coxhead's work highlighted the necessity of identifying and teaching vocabulary that is directly relevant to specific professional domains rather than relying solely on general academic word lists [1].

Further theoretical grounding for the study of professional vocabulary can be found in the works of I. S. P. Nation, who emphasized vocabulary depth, frequency, and contextual usage as key fac-

tors in lexical competence [2]. Nation argued that mastery of specialized vocabulary requires not only knowledge of word meanings but also understanding of collocations, grammatical behavior, and pragmatic constraints, which is particularly relevant for IT terminology. Similarly, Ken Hyland explored the role of lexical choices in disciplinary discourse, demonstrating how vocabulary functions as a marker of professional identity and membership within expert communities. His research showed that specialized lexis contributes to the construction of authority and credibility in professional communication [3].

In the IT domain specifically, researchers have examined the influence of technological innovation on language change and vocabulary expansion. David Crystal analyzed the impact of digital technologies on language and highlighted the emergence of new lexical forms driven by online communication and technological development [4]. His work emphasized that IT vocabulary evolves rapidly and often enters general language use, blurring the boundaries between technical and everyday lexicon. This observation is further supported by studies conducted by Mark Warschauer, who investigated digital literacy and communication practices in technology-mediated environments. Warschauer argued that effective participation in digital communication requires not only technical skills but also mastery of the specialized vocabulary that underpins digital interaction [5].

Several scholars have also focused on the structural characteristics of IT vocabulary. Research indicates that IT terminology is marked by a high frequency of acronyms, abbreviations, compound nouns, and metaphor-based terms. For instance, metaphorical extensions such as *cloud*, *virus*, or *firewall* have been examined by cognitive linguists as examples of conceptual metaphor in technical discourse. These studies demonstrate how abstract technological concepts are understood and communicated through familiar real-world experiences, facilitating comprehension among professionals and non-specialists alike.

Another significant direction of research concerns digital communication practices and discourse hybridity. Sali Tagliamonte and Derek Denis explored linguistic innovation in digital communication, noting that professional online discourse often combines features of written and spoken language. In such hybrid discourse forms, IT vocabulary functions not only as a naming tool but also as a marker of professional competence, efficiency, and group membership. This aligns with discourse-based studies that emphasize the social and pragmatic functions of vocabulary in professional communities [6].

Despite the growing number of studies on professional discourse, ESP, and digital communication, relatively few works provide a comprehensive analysis of IT vocabulary as an integrated component of professional digital communication rather than a static collection of technical terms. Existing research often focuses on either linguistic structure or pedagogical methodology, leaving a gap in understanding how IT vocabulary simultaneously performs linguistic, communicative, and social functions in professional digital environments. This gap highlights the need for further interdisciplinary research that combines linguistic analysis, discourse studies, and educational perspectives.

Research Objective. The purpose of this study is to analyze IT vocabulary as an essential component of professional digital communication and to determine its role in ensuring effective interaction in IT-related professional contexts.

The specific objectives of the research include:

- examining the linguistic characteristics of IT vocabulary;
- identifying the communicative functions of IT lexis in professional digital environments;
- analyzing challenges related to the acquisition and use of IT vocabulary;
- substantiating the need for systematic IT vocabulary instruction in professional education.

Main Body of the Research. IT vocabulary constitutes a highly specialized lexical system with distinctive linguistic, semantic, and pragmatic features. It is shaped not only by technological developments but also by the communicative needs of professionals in the global digital environment. The lexical units in IT encompass terms borrowed from mathematics, computer science, engineering, and

natural sciences, as well as neologisms created to describe emerging technologies, methodologies, and software solutions. Structurally, IT terminology often manifests in multiple forms:

– **Compound nouns and technical phrases:** Examples include *data mining*, *machine learning*, *network security*, *cloud computing architecture*, and *distributed ledger technology*. Such compounds often reflect complex conceptual relationships within the IT domain.

– **Abbreviations and acronyms:** Short forms like *AI* (Artificial Intelligence), *UX* (User Experience), *IoT* (Internet of Things), and *API* (Application Programming Interface) serve as concise, standardized tools for communication within professional communities.

– **Multi-word expressions and collocations:** Phrases such as *version control system*, *agile development methodology*, and *continuous integration pipeline* indicate functional or procedural concepts crucial for IT practice.

Semantically, IT vocabulary is distinguished by precision, context-dependence, and conceptual density. Many terms possess highly specialized meanings that are valid only within technical contexts. For instance, the term *architecture* in IT refers to system design and structural organization rather than physical buildings; similarly, *thread* in programming does not denote sewing material but a sequence of execution in computing. This semantic specificity necessitates a high degree of contextual awareness from language users, as misuse may result in miscommunication, coding errors, or project inefficiencies [7].

Furthermore, IT vocabulary is dynamic and evolving, reflecting rapid technological innovations. New concepts such as *blockchain*, *quantum computing*, or *edge computing* are continually introduced, often before formal definitions appear in dictionaries or textbooks. This constant evolution underscores the necessity of lifelong lexical acquisition for IT professionals.

Professional digital communication in IT encompasses multiple modalities, including:

1. **Synchronous communication:** Online meetings, video conferences, pair programming sessions, and instant messaging platforms.

2. **Asynchronous communication:** Emails, project management tools (e.g., Jira, Trello), discussion forums, and collaborative coding platforms (e.g., GitHub, GitLab).

3. **Documentation and reporting:** Technical specifications, user manuals, system documentation, and bug reports.

4. **Customer and stakeholder communication:** Support tickets, product explanations, and client consultations.

In all these contexts, IT vocabulary plays several crucial roles:

Terminological accuracy: Precise use of terms ensures clarity in describing processes, implementing solutions, debugging code, and documenting procedures. Ambiguities in vocabulary can lead to costly errors or system failures.

Efficiency and conciseness: Using standardized terms allows complex ideas to be conveyed in fewer words, facilitating rapid communication within teams.

Professional alignment and identity: IT vocabulary signals expertise and belonging to a professional community. Correct usage enhances credibility and mutual understanding among colleagues.

Audience adaptation: Effective communication requires adjusting vocabulary according to the audience. For instance, technical jargon is suitable among developers but must be simplified when addressing clients or stakeholders with limited IT knowledge. This emphasizes the **pragmatic function** of IT vocabulary in digital communication [7].

Moreover, the interplay between technical accuracy and linguistic clarity is central to interdisciplinary projects, where IT specialists must communicate with engineers, data scientists, business analysts, and managers. Proficiency in IT vocabulary allows professionals to mediate knowledge between different disciplines without loss of meaning.

Despite its importance, mastering IT vocabulary presents several significant challenges:

1. **Rapid lexical change:** IT terminology evolves continuously as new technologies emerge. Educational materials and dictionaries often lag behind current professional usage.

2. **Language dominance:** English serves as the lingua franca of IT, which may pose difficulties for non-native speakers. Misinterpretation of English terms can affect international collaborations.

3. **Lack of equivalents in other languages:** Many IT terms do not have standardized translations, leading to borrowing or code-switching. This can introduce comprehension barriers in multilingual teams.

4. **Semantic ambiguity:** Certain terms possess multiple meanings depending on context. For example, *server* can refer to hardware, software, or a process depending on the situation.

5. **Integration into professional practice:** Memorization alone is insufficient. Effective acquisition requires exposure in practical, real-world contexts and repeated use in professional tasks.

Addressing these challenges requires both pedagogical innovation and personal strategies for autonomous learning, including the use of online glossaries, technical forums, and collaborative platforms.

From an educational perspective, IT vocabulary should be treated as an integral component of professional competence rather than an optional addition to language curricula. Traditional teaching methods based on rote memorization are insufficient because they fail to capture the contextual and functional dimensions of vocabulary use. Instead, contextualized, task-based, and project-based approaches are recommended:

- **Authentic materials:** Incorporating real technical documentation, code samples, and IT manuals exposes learners to genuine usage.

- **Collaborative learning:** Pair programming, group projects, and peer discussions reinforce lexical retention and practical application.

- **Problem-solving tasks:** Assignments that require troubleshooting, debugging, or writing technical specifications encourage active use of terminology.

- **Digital literacy integration:** Students should be trained to navigate online technical resources, participate in forums (e.g., Stack Overflow), and consult up-to-date documentation.

- **Intercultural awareness:** In multinational teams, understanding how terms may differ across regions or languages is essential for effective communication.

Additionally, professional development programs should incorporate continuous vocabulary enrichment strategies, including workshops, online courses, and mentoring by experienced IT specialists. This approach not only strengthens linguistic competence but also fosters professional identity and confidence.

Beyond individual communication, IT vocabulary serves as a bridge between disciplines. In projects involving software engineering, data analysis, cybersecurity, and management, terminology provides a shared framework for knowledge exchange. For global organizations, standardized IT lexis facilitates collaboration across borders, enabling teams in different countries to coordinate effectively despite cultural and linguistic differences [8].

Moreover, IT vocabulary contributes to the development of digital professional culture, encompassing both technical proficiency and the norms of professional communication. Understanding and using the correct terms signals expertise, fosters mutual respect, and ensures ethical and efficient collaboration in complex digital environments.

Conclusions. The analysis conducted in this study confirms that IT vocabulary is a crucial component of professional digital communication. It enables precise information exchange, supports professional collaboration, and facilitates participation in global digital environments. Given the dynamic nature of IT terminology, continuous vocabulary development should be recognized as a lifelong professional requirement for IT specialists.

The study demonstrates that IT vocabulary is not merely a set of technical terms but a system of linguistic resources that reflects the evolving knowledge, practices, and innovations within the IT sector. Mastery of IT-specific lexis enhances the clarity and efficiency of communication, reduces the risk of misunderstandings in collaborative projects, and ensures accurate documentation of technical

processes. This is particularly critical in international teams, where linguistic and cultural differences may otherwise hinder effective collaboration.

The findings suggest that higher education institutions and professional training programs should allocate special attention to systematic IT vocabulary instruction. Integrating IT lexical competence into curricula can strengthen both theoretical knowledge and practical communication skills, enabling graduates to navigate complex professional environments. The study also emphasizes the importance of contextualized learning, where students encounter terms in authentic situations such as coding projects, technical documentation, and collaborative problem-solving activities.

Furthermore, IT vocabulary contributes to professional identity formation. The ability to accurately use specialized terminology signals expertise, supports professional credibility, and facilitates engagement in global digital communities. Professionals with strong lexical competence are better equipped to adapt to emerging technologies, translate complex concepts for diverse audiences, and participate in interdisciplinary projects that require both technical and communicative proficiency.

Finally, the study underscores that IT vocabulary is an integral component of digital communicative competence, which encompasses not only linguistic accuracy but also pragmatic, cultural, and technical dimensions. By fostering lexical competence, organizations and educational institutions can cultivate highly skilled IT professionals capable of effective, precise, and contextually appropriate communication in increasingly interconnected and technologically complex work environments. In conclusion, the cultivation of IT vocabulary is essential for professional success in the modern digital economy. It ensures both operational efficiency and collaborative productivity, supports interdisciplinary understanding, and strengthens the capacity of IT specialists to innovate and respond to the demands of a rapidly changing technological landscape.

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