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DISCOURSE ANALYSIS OF TECHNICAL DOCUMENTATION IN ENGLISH

This article is devoted to a comprehensive discursive analysis of English-language technical documentation in the field of information technology as a hypothetical sociolect of institutional professional discourse. The purpose of the study is to theoretically substantiate and systematically describe the linguistic, communicative and cognitive parameters of technical documentation that ensure its functioning in a high-tech digital environment. The authors paid considerable attention to the review of scientific works on professional discourse, technical communication and genre organization of professional texts, which allowed scientists to identify the most significant theoretical approaches to the study of IT documentation texts.

The analysis outlines the idea that educational documentation is a set of genres that perform various functions – from regulating professional activity to organizing knowledge and facilitating user interaction with technological products. It was demonstrated that the discourse of technical documentation is characterized by high standardization, pragmatic orientation, impersonality, factuality and logical organization of content.

The authors of the article paid considerable attention to sociocultural factors that determine the formation of language norms in the professional environment of the IT industry, in particular the requirements for accuracy, unambiguousness and transparency of communication. The role of intertextuality was revealed, which ensures the coherence of documentation and its integration into a broader techno-social context.

The article concludes that technical documentation in the IT sector is a dynamic and complex discourse that is shaped by technological changes, but at the same time retains stable basic principles of organization. The results of the analysis deepen the understanding of the mechanisms of circulation of technical knowledge and outline the prospects for further research related to the growing role of digital formats, automated documentation and artificial intelligence in the transformation of professional communication.

Key words: *discourse analysis, technical documentation, instructions, genre analysis, intertextuality.*

Statement of the problem. In today's IT industry, technical documentation in English has become a key communication tool between developers, engineers, analysts, technical writers, and end users. Documents such as API specifications, software requirements specifications, architecture descriptions, user guides, troubleshooting guides, release notes, and DevOps documentation are not only sources of information, but also a structured intellectual product that regulates the interaction between humans and complex technological systems. Therefore, the study of the discourse of technical documentation is relevant for IT professionals, linguists, and technical communication experts.

Despite the significant number of works on technical writing and professional discourse analysis, the features of the discourse of English-language documentation for the local IT sector are often described fragmentarily. Most of the research focuses on the stylistic characteristics of the scientific and technical style. However, the specifics of the technological sphere, rapid changes, short development cycles, flexible methodologies, integration of global teams, standardization of algorithm descriptions and data structures, create new requirements for analysis. This, in turn, generates the need for a deeper study of the discourse of technical documentation, mechanisms of

meaning creation, pragmatic strategies and linguistic models inherent in IT texts.

Analysis of recent research and publications. Technical discourse is based on principles described in works on technical communication and professional writing, such as the studies of M. Markel and S. Selber on the structural organization of technical documents and principles of readability [14]; the works of J. Redish [18], which focus on the role of a user-centered approach; and the studies of K. Shriver [19], which focus on the cognitive processing of instructions. Also important for linguistics are the approaches to the analysis of professional discourse presented in the works of V. Bhatia [3], and T. van Dijk [21], which emphasize the interrelationship of linguistic structures, institutional practices and social functions of the text.

In the field of information technology, specialized studies of technical documentation are developing in the works of P. Spilka, and the IEEE Professional Communication Society. These works point to the standardization of documentation (in particular, IEEE 1016 for software project descriptions), the requirement for terminological accuracy, the need for cognitively understandable instructions, and the role of representing complex technical processes through language.

Discourse analysis of IT documentation is reflected in modern research by S. Muhlenbacher [15], who considers documentation as an integral part of the user experience (UX) ecosystem, as well as in the works of R. Nordqvist [17], who describes technical discourse as a "regulated form of professional communication". Significant research in corpus linguistics is also included, such as the works of D. Bieber and R. Reppen [4], who investigate the grammatical features of technical texts, and A. Kilgarriff [12], who is devoted to corpus methods of terminological analysis.

Publications in the journals Technical Communication, Journal of Technical Writing and Communication, IEEE Transactions on Professional Communication, and Information Design Journal describe trends in API documentation, automated documentation tools, new formats such as docs-as-code, and the role of content strategies in technology companies. A separate body of research focuses on how agile processes are changing the structure of engineering documentation.

Thus, existing works constitute a significant foundation, but there is no comprehensive study of the discourse features of English technical documentation in the IT industry as a complex communicative system.

Task statement. The aim of the article is to conduct a comprehensive discursive analysis of English technical documentation in the field of information technology, to determine its linguistic, pragmatic, cognitive and genre characteristics, as well as to identify communicative strategies that ensure the effective transmission of technical information.

To achieve the goal, the following **tasks** are set:

1. To identify the linguistic features of English technical documentation in the field of IT.

2. To analyze the genre features of the main types of IT documents.

3. To identify pragmatic strategies that help make information understandable and accurate.

4. To investigate the role of terminology, standardization and linguistic economy in the formation of technical discourse.

5. To identify cognitive mechanisms for interpreting instructions, algorithms and procedures.

6. To analyze the influence of technological processes (agile, DevOps, CI/CD) on the structure of the discourse.

7. To summarize the features of the interaction between language, technologies and professional practice of developers.

Outline of the main material of the study. The discourse of technical documentation in the English-speaking IT sector is the intersection of four factors: linguistic, professional, cognitive and socio-communicative. These numerous factors determine its complex multi-level structure. First of all, it is aimed at ensuring accuracy, unambiguousness and efficiency of work with information systems, therefore it is characterized by a high degree of standardization, formalization and predictability.

From the point of view of discursive linguistics, technical documentation is an institutional type of discourse within which stable communicative models, genre templates and specialized language tools are formed and used to transfer technical knowledge and procedures [9].

Technical documentation in the field of information technology is a regulatory tool that not only records knowledge, but also manages the user's interaction with the product. Thus, English-language IT discourse tends to be operationally oriented: most texts are structured in such a way that the reader processes information sequentially, moving from a general principle to a specific implementation or from an abstract concept to its implementation in a system. This strategy correlates with the theory of cognitive information design, according to which technical

texts should minimize cognitive load and optimize the perception of complex data.

A key characteristic of technical documentation discourse is genre stratification. In the IT field, it encompasses genres such as system architecture descriptions, API specifications, software requirements, end-user documentation, analytical reports, internal company standards, security documentation, test protocols, installation instructions, release notes, and others. Each genre has its own compositional structure, typical speech acts, and level of formalization, as confirmed by Swales' research, which emphasizes that genres of professional discourse are determined by the communicative goals of the community [20]. In the case of technical documentation in the IT industry, the communicative goal is determined by the need to transfer knowledge that directly affects the functioning of digital systems, so genres here are particularly stable and standardized.

The main attention is paid to the textual organization of technical documentation. The main features of the organization of the text are the predominance of logically defined connections, hierarchical structuring and segmentation of information. Typical features are the clear designation of information parts, the use of unified headings, the use of numbering, glossaries and footnotes. The standardized nature of the presentation of information is the result of technical standards in the industry, which are followed by leading organizations: IEEE, ISO, ACM and others. Such a framework gives an idea of the text, which, according to Halliday and Martin, reduces the cognitive complexity of the perception of technical texts and facilitates the processing of specialized information [7].

From the linguistic side, IT technical documentation demonstrates a special balance of generalized scientific language and highly specialized terminology. A significant number of terms belong to the category of "nominative constructions", i.e. units that denote complex concepts in a short form. Such structures are often formed through composition, morphological derivation, or metaphorical representation of technological processes (*e.g., pipeline, cloud, architecture, gateway*). Research on changes in IT terminology indicates that the speed of emergence of new concepts in the industry is a major reason for the rapid lexical expansion, the emergence of interdisciplinary terms, and the establishment of new semantic relationships between already existing units.

The pragmatics of technical documentation is largely determined not only by the structure of the text, but also by the roles of the communicators. A technical writer, engineer, or development team is usually the author of the documentation, and they need to reconcile the accuracy of the formulations with the accessibility of the presentation. The concept of "audience design", that is, adapting the discourse to the needs of the target audience, is quite relevant here. In the IT industry, the audience can be heterogeneous: a group of highly qualified engineers and users without a technical education. This affects the choice of register, the density of terms, the level of detail, and the ways in which information is presented.

An important aspect is that technical documentation is intertextual. This is evident in the references to standards, product versions, external documents, libraries and conceptual models. Such interdependence of texts forms an entire communicative ecosystem in which documentation acquires the features of a networked discourse. According to Fairclough, modern institutional discourses are becoming increasingly hybrid and interconnected, which is very characteristic of IT discourse, where each document serves as an element of a knowledge system [5].

The cognitive aspect of technical discourse consists in the representation of specialized information using models, diagrams, lists, logical blocks, etc., which contribute to the reconstruction of the reader's knowledge. Within the framework of cognitive linguistics [13], technical text is considered as a tool of conceptualization: it not only creates a structured representation of the functioning of technology in the user's mind, but also limits interpretation to clear definitions and instructions.

Equally important is the sociocultural dimension of IT discourse. Technical documentation is not neutral, it reflects the professional values of the community: accuracy, transparency, efficiency, security and innovation, among others. Studies of professional communicative cultures show that the IT community is characterized by a high level of formalization, collective responsibility and a standardized approach to working with information [6]. This is expressed in the discourse through the absence of emotions, the minimization of subjective statements and the preference for impersonal constructions.

All the above-mentioned features confirm that English-language technical documentation on information technologies is a complex, highly standardized, multi-component discourse, which, in addition to the communicative function, also has cognitive, regulatory and social functions. Its analysis allows us to see the regularities of the organization of technical knowledge, the mechanisms of its structuring, the ways of forming professional identity and the condi-

tions for ensuring effective interaction between a person and digital systems.

Conclusions. The conducted discourse analysis of English-language technical documentation in the field of information technology allows us to establish a number of principles of regularities that occur in the nature, functioning and dynamics of this type of institutional discourse. Given the complex nature of the phenomenon under study, it can be argued that technical documentation is becoming not just a genre set of professional texts, but a holistic communicative system within which the formalization of technical knowledge, regulation of professional activity and reproduction of values of the IT community take place.

First of all, it was found that the discourse of technical documentation functions as a highly standardized type of institutional speech, which has clear rules, established language forms and rigidly structured genre models. This standardization is due to the needs of the IT industry, in which any inaccuracies in formulation can lead to disruption of the system, the occurrence of technical failures or security risks. Therefore, the discourse of technical documentation has a particularly pronounced pragmatic orientation towards the accuracy, unambiguousness and operationality of content, which uses its linguistic characteristics and text organization.

One of the key findings is that technical documentation in IT performs several levels of functions. In addition to simply providing knowledge about systems and processes, it also changes the way of thinking, organizes professional activities and even models the user's interaction with technologies. In this sense, discourse appears not only as a cognitive resource, but also as a learning tool and regulator of practical activity. The linguistic means of technical texts provide not only the naming of specialized concepts, but also the conceptualization of technological processes, which corresponds to the provisions of cognitive linguistics regarding the role of language in the structuring of knowledge.

Moreover, the analysis also showed that intertextuality plays an important role in the structure of technical documentation. The connection of texts with standards, specifications, product versions, external libraries or regulatory documents creates a networked knowledge system that goes far beyond a single text. Such interconnectedness indicates the systemic nature of technical communication, where each document performs a dual function – an autonomous source of information and an element of a broader techno-social context.

The results of the study provide grounds to argue that the discourse of technical documentation in English in the conditions of the modern IT industry is complex and dynamic. Its transformation occurs continuously and depends on the emergence of new technologies, tools, standards, formats for presenting information and changes in the practice of professional interaction.

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Ковальова К. О., Лесневська К. В., Сташук Т. І. ДИСКУРСНИЙ АНАЛІЗ ТЕХНІЧНОЇ ДОКУМЕНТАЦІЇ В АНГЛІЙСЬКІЙ МОВІ

Стаття присвячена комплексному дискурсивному аналізу англомовної технічної документації в галузі інформаційних технологій як гіпотетичного соціолекту інституційного професійного дискурсу. Метою дослідження є теоретичне обґрунтування та систематичний опис лінгвістичних, комунікативних та когнітивних параметрів технічної документації, що забезпечують її функціонування у високотехнологічному цифровому середовищі. Автори приділили значну увагу огляду наукових праць з професійного дискурсу, технічної комунікації та жанрової організації професійних текстів, що дозволило вченим виявити найбільш значущі теоретичні підходи до вивчення текстів IT-документації.

В аналізі окреслено ідею про те, що навчальна документація – це сукупність жанрів, які виконують різні функції – від регулювання професійної діяльності до організації знань та сприяння взаємодії користувача з технологічними продуктами. Було продемонстровано, що дискурс технічної документації характеризується високою стандартизацією, прагматичною спрямованістю, безособовістю, фактичністю та логічною організацією контенту.

Автори статті приділили значну увагу соціокультурним факторам, що визначають формування мовних норм у професійному середовищі IT-індустрії, зокрема вимогам до точності, однозначності та прозорості комунікації. Було виявлено роль інтертекстуальності, яка забезпечує зв'язність документації та її інтеграцію в ширший техносоціальний контекст.

У статті зроблено висновок, що технічна документація в IT-секторі – це динамічний та складний дискурс, який формується технологічними змінами, але водночас зберігає стабільні основні принципи організації. Результати аналізу поглиблюють розуміння механізмів циркуляції технічних знань та окреслюють перспективи подальших досліджень, пов'язаних зі зростаючою роллю цифрових форматів, автоматизованої документації та штучного інтелекту в трансформації професійної комунікації.

Ключові слова: *дискурс-аналіз, технічна документація, інструкції, жанровий аналіз, інтертекстуальність.*