

## THE STAGES OF FORMATION AND DEVELOPMENT OF THE TERMINOLOGICAL FIELD OF ARTIFICIAL INTELLIGENCE

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**ABSTRACT:** This article explores the chronological stages in the formation and evolution of the terminological field of artificial intelligence (AI). It analyzes the historical background, interdisciplinary influences, and the impact of technological progress on the emergence of new AI-related terms. The study also examines the role of globalization and language policy in shaping AI terminology in different languages, with a particular focus on the Uzbek linguistic context. The paper aims to highlight the importance of a consistent and scientifically grounded approach to the development and standardization of AI terminology in order to ensure clarity and effective communication in academic and professional spheres.

**Keywords:** Artificial intelligence, terminology development, terminological field, neologisms, interdisciplinary influence, globalization, language policy, standardization, Uzbek language, scientific communication

### INTRODUCTION

In recent decades, artificial intelligence (AI) has emerged as one of the most influential fields of science and technology, fundamentally transforming various sectors, including education, medicine, economics, and defense. The rapid advancement of AI has led not only to technological breakthroughs but also to the dynamic evolution of its conceptual and terminological framework. As AI continues to evolve, so does its terminology, which reflects both the complexity of the subject and the interdisciplinary nature of its applications. The formation of the AI terminological field is not a spontaneous process—it has gone through several distinct stages marked by shifts in scientific paradigms, sociopolitical conditions, and linguistic trends. From the early philosophical discussions of machine intelligence to the formalization of terms during the mid-20th century and the subsequent influence of computer science, AI terminology has expanded significantly, incorporating neologisms and borrowed terms from various domains.

Moreover, globalization and the widespread dissemination of scientific knowledge have led to the internationalization of AI terminology. This, in turn, has presented challenges for languages like Uzbek, where the integration and adaptation of AI terms require careful consideration of linguistic structure, semantic accuracy, and national language policy. The increasing necessity to standardize AI terms in native languages highlights the importance of scientific approaches in terminological planning and development. This paper seeks to examine the stages of development of AI terminology, identify its linguistic and structural features, and discuss the implications of terminological innovation in multilingual contexts. A particular emphasis is placed on the Uzbek language, offering insights into how local linguistic systems interact with global technological discourse.

### Historical stages in the formation of ai terminology

The emergence of AI terminology can be divided into several historical phases. The first phase, spanning from the 1940s to the early 1960s, was marked by the conceptualization of artificial intelligence in theoretical and philosophical contexts. Terms such as “*machine intelligence*”, “*cybernetics*”, and “*thinking machines*” were common, although still loosely defined. The second phase began with the formal establishment of AI as a scientific discipline during the 1956 Dartmouth Conference. Foundational terms such as “*artificial intelligence*”, “*heuristics*”, “*machine learning*”, and “*neural networks*” entered academic and technical vocabularies, many of which persist today. This period witnessed the cross-pollination of computer science, mathematics, and linguistics. The third phase, from the 1980s to the early 2000s, saw significant technological advancements and the commercialization of AI-related applications. This led to the creation of specialized subfields like “*expert systems*”, “*natural language processing (NLP)*”, and “*computer vision*”. During this time, the English language dominated AI discourse, heavily influencing terminology in non-English-speaking countries.

The current phase, starting from the 2010s, is characterized by the global proliferation of AI across nearly every discipline. Terms such as “*deep learning*”, “*generative AI*”, “*algorithmic bias*”, and “*AI ethics*” have become commonplace. The integration of AI into social, economic, and educational systems has generated a need for more precise, culturally relevant, and standardized terminologies.

### Linguistic and structural features of ai terminology

AI terminology is marked by a high degree of complexity, polysemy, and multicomponent structures. Many terms are borrowed from other disciplines and undergo semantic transformation. For instance, the term “*network*” in general usage refers to a system of interconnected people or things; in AI, it implies a system of layered algorithms used in deep learning. Additionally, the creation of compound terms, such as “*neural network architecture*” or “*unsupervised machine learning*”, reflects the precision needed to describe complex phenomena. Abbreviations and acronyms (e.g., NLP, GPT, LLMs) are also prevalent and require consistent interpretation across languages.

### The role of language policy and localization in terminology development

Terminology development does not occur in a vacuum. In countries with active language policies, like Uzbekistan, there is a conscious effort to localize or adapt foreign AI terms into the national language. This involves creating equivalent terms that align with the phonological, morphological, and syntactic norms of the Uzbek language. However, this process is not without challenges. Some AI concepts lack direct equivalents in Uzbek, necessitating either transliteration or descriptive translation. For instance, “*machine learning*” is often rendered as “*mashinali o‘qitish*” or “*kompyuter orqali o‘rganish*”, depending on context. Balancing linguistic purity with scientific accuracy is a central dilemma in terminological planning.

### The importance of standardization and international harmonization

With AI being a global phenomenon, terminological standardization becomes essential for effective communication in academia, industry, and policymaking. International organizations such as ISO and

IEEE contribute to this process by proposing unified terminologies, but the responsibility for adaptation rests with national linguistic institutions. For the Uzbek context, collaboration between linguists, computer scientists, and educators is key to ensuring that newly coined or adapted terms are both scientifically valid and culturally appropriate. This standardization supports the integration of AI education into the national curriculum and enhances participation in global scientific dialogue.

## CONCLUSION

The terminological field of artificial intelligence has undergone a complex and multi-stage development process, reflecting the interdisciplinary nature and rapid evolution of the domain. From its philosophical origins to its current global application across scientific and industrial sectors, AI terminology continues to expand, adapt, and diversify. Each historical stage has contributed to the enrichment of the terminological corpus, introducing new concepts, redefining existing ones, and fostering the integration of AI into various languages and cultures. The development of AI terminology is not merely a linguistic phenomenon—it is intrinsically linked to technological progress, societal needs, and language policy. In the context of the Uzbek language, efforts to localize and standardize AI-related terms are crucial for ensuring effective knowledge transfer, educational accessibility, and national scientific development. The challenges of translating, adapting, and harmonizing AI terminology demand coordinated collaboration among linguists, educators, technologists, and policymakers. Ultimately, establishing a consistent and scientifically grounded terminological system will facilitate clearer communication, foster innovation, and ensure that AI technologies are accessible and understandable across linguistic and cultural boundaries.

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