

Project “Ark of Knowledge” of Lomonosov Moscow State University and New Horizons of Domestic Encyclopedic Studies

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ABSTRACT

From April 24 to 26, 2024, the International Scientific and Practical Conference “Encyclopedia: Yesterday, Today, Tomorrow” was held at the Lomonosov Moscow State University. The event was organized by the Knowledge Engineering Laboratory of the Institute for Mathematical Research of Complex Systems of the Lomonosov Moscow State University with the support of the Interdisciplinary Scientific and Educational School of Moscow State University “Mathematical Methods of Analysis of Complex Systems”.

Particular attention at the conference was paid to modern approaches to the creation of encyclopedias and digital platforms of fundamental knowledge, including the largest domestic project under the scientific supervision of the Rector of Moscow State University, Academician Viktor Sadovnichy – the Great Russian Encyclopedia. During the discussions, the strategic importance of the “Ark of Knowledge” initiative was repeatedly noted, which is considered as a promising information system for the collective formation and verification of scientific data, capable of complementing and developing the best practices of domestic encyclopedic studies.

KEYWORDS: ontology, information system, knowledge engineering, fundamental knowledge, ontology design, digital platform, information system “Ark of Knowledge” of Lomonosov Moscow State University, Great Russian Encyclopedia

Nowadays, the rapid growth of digital information flows turns the task of finding and systematizing reliable information into a serious challenge for the scientific and educational community. Many open resources, including online encyclopedias, are based on the principles of collective content, but they face problems with content verification and the lack of a clear structure of scientific data. That is why today the issue of creating a sustainable digital ecosystem that would not only accumulate knowledge, but also ensure its reliable storage, formalized structuring, and prospects for further development of research in various fields is especially acute.

In the context of this agenda, the project “Ark of Knowledge” is of particular interest – this is a large-scale initiative promoted by Moscow State University named after M.V. Lomonosov. At its core, “Ark of Knowledge” is a concept for a long-term national platform that aims **to systematize and process** fundamental scientific information in Russian, making it accessible to researchers, teachers, and the general public. But what is especially important is that this initiative goes far beyond the usual “digital library” or “online encyclopedia”.

ESSENCE AND PURPOSE

The key principle of “Ark of Knowledge” is the **continuity** of the encyclopedic tradition and its fusion with advanced technologies. The organizers rely on an ontological approach to the presentation of scientific data: a kind of “framework” of terms and concepts is created, where each discipline gets the opportunity to formally describe its objects, linking them to a common semantic model. Such a unified ontological structure, based on a multi-level verification system, is designed to ensure machine readability of information and deeper analysis of large arrays of scientific texts.

Artificial intelligence and natural language processing technologies

play an important role. In particular, they make it possible to automatically classify and annotate materials, find subtle logical connections between publications, and carefully form knowledge corpora for different types of users. Thus, the focus of the project is not just the accumulation of articles, but **advanced analytics** in the spirit of “knowledge engineering”.

SCIENTIFIC RELIABILITY AND VERIFICATION

In the era of “post-truth” and information overload, any large-scale project that claims to be a reference resource must pay primary attention to verifying the accuracy of information. “Ark of Knowledge” is based on a **multi-level expert assessment system** that combines peer review by academic experts and automated content quality control tools. The task of the project developers is to create a mechanism that will allow for the rapid identification of unreliable information and its correction based on authoritative sources, without violating openness and scientific discussion.

SYNERGY WITH GOVERNMENT PRIORITIES

“Ark of Knowledge” largely reflects the demand for strengthening technological sovereignty: the formation of our own verified database reduces dependence on external digital platforms and foreign arrays of scientific information. The project actively supports the priorities of state policy aimed at developing domestic competencies in the field of artificial intelligence, digitalization of education, and the preservation of cultural and scientific heritage. The use of a national language base, a focus on Russian scientific content and the adaptation of modern ontological methods to our realities make “Ark of Knowledge” a system-forming block that can help form an end-to-end digital knowledge environment.

EDUCATIONAL AND RESEARCH PROSPECTS

One of the most important goals of the project is **to expand educational opportunities** for students and postgraduates, including those from the regions. Having a single platform with open and structured access to scientific data will make it possible to develop special courses on big data analytics, semantic modeling, and practical work with text corpora. It is also planned to integrate “Ark of Knowledge” into practice-oriented training formats (virtual laboratories, seminars, research projects), which will raise the level of training of personnel and increase students’ interest in research activities.

In addition, it is planned that “Ark of Knowledge” will become a base for large **analytical centers** capable of carrying out foresight research and expert assessments for government agencies and other interested organizations. By implementing machine learning tools, such centers will be able to identify new trends, track interdisciplinary connections, and provide scientifically based recommendations on the development prospects of specific areas.

CONCLUSION

“Ark of Knowledge” is a vivid example of how an innovative ecosystem is being formed in Russia, aimed at a qualitatively new stage in **encyclopedic research and the management of scientific knowledge**. The implementation of this project could significantly strengthen the interaction between scientists from different disciplines, provide a mechanism for thoughtful verification of information, and also serve as an impetus for the development of domestic AI technologies. Ultimately, it is precisely such comprehensive solutions – with an emphasis on reliability, technological depth and national interest – that will strengthen the position of science, education and intellectual culture in Russia in a rapidly changing world.