THE ROLE OF THE AGENT ENVIRONMENT IN SOCIETY.

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Annotation. This article examines the role and importance of agent environments in society. Agent-based systems, with their autonomous and interactive features, are widely used in various areas of society. The article describes in detail how agents are used in modeling social systems, analyzing economic processes, predicting epidemics in healthcare, urban planning, and many other areas, and how they affect society.

Key words: Agent-based systems, agent environment, social, economic systems, analysis, complex technological problem, ecological problem, social problem, economy, healthcare, urbanization, society, human life.

Аннотация. В данной статье рассматривается роль и значение агентных сред в обществе. Агентные системы с их автономными и интерактивными функциями широко используются в различных областях общества. В статье подробно описывается, как агенты используются в моделировании социальных систем, анализе экономических процессов, прогнозировании эпидемий в здравоохранении, городском планировании и многих других областях, и как они влияют на общество.

Ключевые слова: Агентные системы, агентская среда, социальные, экономические системы, анализ, сложная технологическая проблема, экологическая проблема, социальная проблема, экономика, здравоохранение, урбанизация, общество, человеческая жизнь.

It also examines the integration of agent-based systems with artificial intelligence and complex systems, and their future development prospects. The article

helps to understand the role of agent environments in society, and to show their importance in various social, economic, and technological processes.

This article examines the role and importance of agent environments in society. Agent-based systems, with their autonomous and interactive features, are widely used in various areas of society. The article describes in detail how agents are used in modeling social systems, analyzing economic processes, predicting epidemics in healthcare, urban planning, and many other areas, and how they affect society. It also examines the integration of agent-based systems with artificial intelligence and complex systems, and their future development prospects. The article helps to understand the role of agent environments in society, and to show their importance in various social, economic, and technological processes.

Agent environments (or "agent-based systems") have become widespread in recent years in artificial intelligence, computer science, economics, psychology, and many other fields. The role and importance of agents in society is increasing with the development of high technologies and systems. These systems are successfully used in modeling individual or collective behavior, decision-making, analysis of social systems and economic processes, and many other areas. This article provides more detailed information about the role of agent environments in various areas of society, its advantages and difficulties, as well as how they may develop in the future.

Agent environments mainly represent systems consisting of several interconnected agents. Agents are elements of a system that can make their own independent decisions and perform their own actions. Each agent has its own unique behavior and constantly interacts with the environment. Agents' actions are based on certain rules or algorithms, and they are able to adapt to changing conditions. Agents can often cooperate or compete.

There are constant connections and interactions between agents.

Agents analyze the environment and make decisions to achieve their goals.

Agents adapt to changes in the environment and change their strategies.

Social systems and social networks

Agent environments are a very effective tool for modeling social systems. The agent-based modeling (ABM) methodology is widely used to study the behavior of social systems, people, and groups. This methodology models various social groups, network connections, and behavioral changes, and analyzes various phenomena in society (such as social influence, information diffusion, or migration).

For example, when studying the process of information diffusion in voluntary networks, it is possible to show how agents distribute information through their actions and connections. In this area, agents can be used to model problems such as the spread of fake news, social flows, and the social impact of public policies.

Agent-based models are also widely used in economics, in particular, in the analysis of market processes. Market participants (sellers, buyers, producers, etc.) are modeled as agents, and their decisions and actions constitute the environment.

Agent-based models can study market competition, price changes, financial crashes, and other economic phenomena. Using this model, it is possible to analyze the fluctuations of economic systems and forecast future economic conditions. For example, it is possible to analyze how a set of agents behave when setting prices for different goods or launching new products.

Agent-based modeling is also effectively used in modeling health systems and epidemics. For example, agents are used to study issues such as disease spread, vaccine distribution strategies, and improving public health. Agents can adapt their actions to real-world conditions and learn what strategies to use to

Agent-based modeling is also used in urban planning and infrastructure analysis. In modeling cities and urbanization processes, agents analyze the factors that affect the growth of cities through their decisions. For example, agents can determine strategies for planning and developing cities through agents that affect transportation systems, energy consumption, living conditions, and other factors.

Agent-based systems are having a major impact on the development of artificial intelligence. In artificial intelligence, agents have the ability to learn their actions and adapt to their environment. Using reinforcement learning (RL) methods, agents learn

from their experiences and develop improved strategies. These methods are used, for example, in self-driving cars, robots, and complex systems.

The future of agent-based systems and agent environments is very promising. They help not only in the analysis of social and economic systems, but also in solving complex technological, environmental and social problems. However, these systems face some challenges. For example, the complexity of the systems, the difficulties in working with big data, and the complexity of managing the relationships and actions between agents, as well as their uncertainty.

Agent-based systems can become important tools for studying and managing complex systems in society. They provide decision-making in accordance with real-world conditions in social networks, economics, healthcare, urbanization and other areas. In the future, agent-based systems are expected to develop further with new technologies and approaches. This, in turn, can create new opportunities in solving various problems in society and improving human life.

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