



Digital Control and Artificial Intelligence Is the Basis of Development

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Abstract: The content and essence of digital management and artificial intelligence are revealed in the article. Digital control has been given a new definition, its structure and algorithm have been developed. Improvement of the management mechanism of the "Asaka don mahsulotlari" enterprise in Andijan region using digitalization is highlighted. The improvement of the control mechanism is justified by the increase in efficiency.

Keywords: Digital management, marketing, innovation, motivation, algorithm, control mechanism, efficiency.

Introduction: Aiming at the new Uzbekistan in all aspects, i.e. socio-economic and technical-technological issues according to and systematic development is very relevant today. One of the ways to solve this urgent problem is the effective use of information flows from digital management and artificial intelligence.

In the Address of the President of the Republic of Uzbekistan Shavkat Mirziyoyev to the Oliy Majlis and the people of Uzbekistan on December 20, there are five problems in the development of the New Uzbekistan. In order to achieve these high goals, "We will organize our further work according to 5 main tasks within the framework of the development strategy" [1]. The role of digital management in effective solution of these tasks is incomparable. Digital management is a modern, versatile, highly capable tool that helps people improve all their activities. Digital management is currently becoming the main criterion for the success of social and economic sectors.

In the current era of rapid development, one of the most urgent issues is to ensure the efficient, stable and balanced macroeconomic development of the new Uzbekistan. The role of artificial intelligence systems in the successful implementation of this urgent issue is incomparable. As stated in the decision of the President

of the Republic of Uzbekistan No. PQ-4996 dated February 17, 2021: Sun, which defines the main directions and principles of the use of artificial intelligence, as well as the conditions for the comprehensive formation of this field in the near and long term. the strategy of developing good intelligence development is our main goal [2].

The term "artificial intelligence" entered science in the 60s of the 20th century. In 1969, an international conference on artificial intelligence was held in Washington, where the issues of modeling human creative activity on electronic computing machines (ECM) were discussed. At this conference, artificial intelligence was defined as follows: "Artificial intelligence is an artificial system that imitates complex issues of human activity." Currently, there is no consensus among scientists and experts on artificial intelligence.

human mental issues with the help of electronic computers ." Also, in 1995, OVGerman defined "artificial intelligence as a programming system that simulates human thinking on a computer." As a result of our research, we found it necessary to define artificial intelligence as follows. Artificial intelligence is an intelligent system that imitates issues of human activity with the help of electronic devices. Currently, IT specialists and scientists are conducting a lot of research on the introduction of artificial intelligence systems and their troubleshooting. In particular, the issues of face recognition through artificial intelligence, voice recognition and implementation of the given task using artificial intelligence technologies are being implemented in real time.

It is necessary to use computer systems to solve the problems in our life and to reduce the human factor, as well as to solve problematic issues, if we teach the concept of artificial intelligence to computing machines through artificial intelligence systems.

Artificial intelligence systems will play a very important role in the development of our country's security, education and medical systems and other fields in the future. The social and economic spheres of the research objects will continuously develop in proportion to these results, if we apply the artificial intelligence problems to life using the progress of science and technology and get smart and optimal solutions. This is the basis for the development of New Uzbekistan.

There is no single opinion about digital management among scientists and experts. Therefore, as a result of our research, we found it necessary to give the following definition of digital control.

"Digital management is an electronic system for obtaining optimal results based on marketing, information technology, innovation, and employee activation." However, the issues of digital management have not been fully studied by the managers and specialists of the enterprise, organization. In order to organize digital management in enterprises , they should effectively use the following issues:

- Marketing management;
- Organizing the use of information systems;
- Organization of innovative management;
- Motivating (activating) the activities of employees;
- Implementation of automated control systems.

It is very difficult to fully implement the above issues . For this reason, we limited ourselves to the research of the use of information systems, which is the basis of digital management.

The organization of digital management requires the rational use of tools and resources that make up information systems.

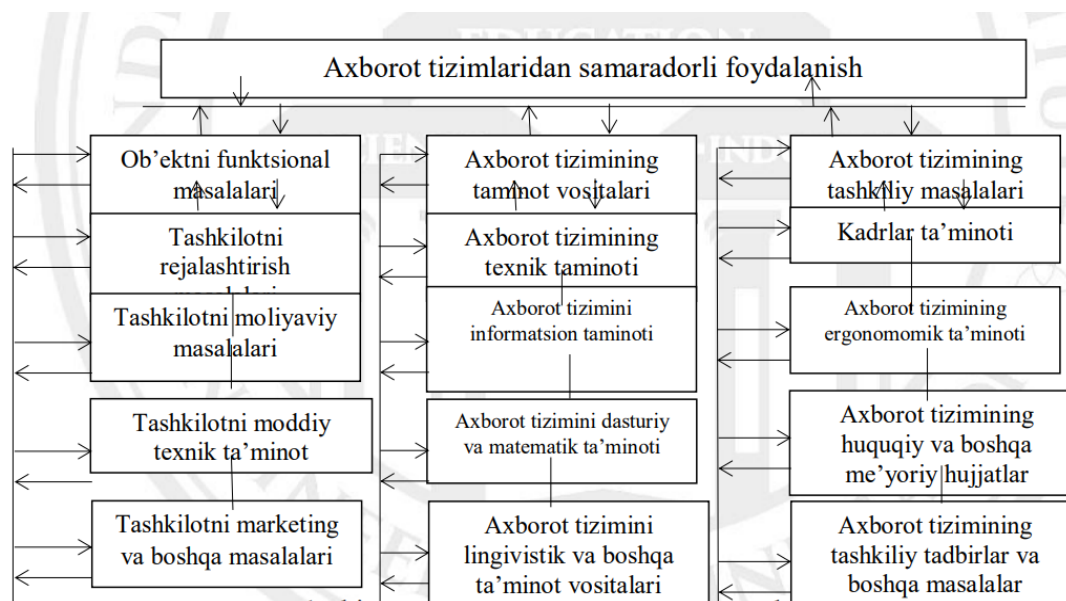


Figure 1. Effective use of information systems.

Figure 1 shows that in the effective use of information systems, it is necessary to ensure the logical and systematic interconnection of functional issues of objects, tools of the information system and organizational issues. This ensures the successful implementation of digital management. It is necessary to create the information systems of the cities, regions and other structural units of the Republic of Uzbekistan at the required level in the above method and connect them logically.

from the experiences of developed foreign countries and the research of scientists (academicians V. Qabulov, M. Sharifhadzhayev, N. Yusufbekov, SS Gulomov, FB Abutaliyev, etc.) that the country and its structural units are informed, digitally controlled and artificial intelligence if the issues are developed, the level of its development will be proportionally higher.

There is no single opinion among scientists about intelligent information technology, therefore, as a result of our research, we defined Intelligent information technology as follows:

Intelligent information technology (IAT) is a technology that processes data from various fields based on systematic, logical and objective laws and provides intelligent solutions.

A fundamentally new structural organization of intelligent systems based on the theory of artificial intelligence (SI), operations research and automatic control was developed in 1989 by J. Saridis (one of the founders of the new scientific direction of the theory of intelligent machines). The main task of the intelligent information management system, which is qualitatively different from other information

management systems, is to implement certain "rational", human thinking and actions aimed at achieving a specific goal in the relevant field of science. In most cases, when performing certain actions, a person does not know exactly how to do it. He does not know the algorithm of the processes of understanding the text, proving a theorem, developing a plan of action, solving a problem, etc., going on in his brain. Thus, any task for which the solution algorithm is unknown belongs to the field of application of artificial intelligence systems. When solving these problems, a person acts without having a clear way of solving the problem.

This type of task has 2 characteristic features:

The use of information in symbolic form (words, actions, pictures) distinguishes artificial intelligence systems from traditional computer systems that process only digital data:

Availability of Choice – The y-axis of a line-reception algorithm means that only under uncertainty must a choice be made between many options.

Artificial intelligence systems can be divided into the following groups according to the range of tasks to be solved.

- Image recognition systems;
- Mathematical systems and automatic theorem proving systems;
- Issues of the medical system;
- Gaming systems;
- Systems for solving technical problems related to purposeful movement in space and time (time);
- Natural language understanding systems;

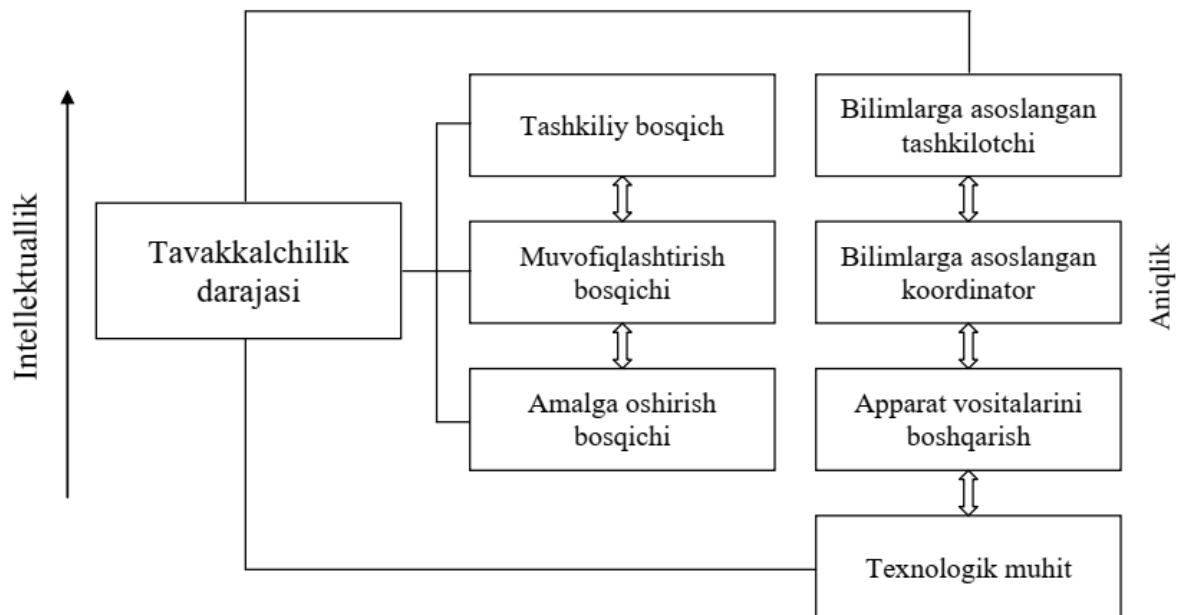


Figure 2. Correlation of intelligence with the level of accuracy in an artificial intelligence system

The intelligent information management system is systematically divided into three generalized levels, arranged according to the basic principle of IPDI (Increasing Precision with Decreasing Intelligence) of the theory of intelligent machines: as the higher levels of the hierarchical structure move, the intelligence of the system increases, but its accuracy decreases and vice versa. The "intelligence" of the system is understood as the ability to work with the database of events to determine some special knowledge that allows clarifying the proposed task and defining ways

to solve it. An overview of the architecture of an intelligent information management system that meets this basic principle is shown in Figure 2. From this figure, the degree of accuracy of the system is inversely related we can see. So we need to find such a relationship that this relationship is optimal. Only then will we achieve high-level results of the artificial intelligence system.

As a result of our research, we found out that the higher the level of application of digital management, the higher the efficiency of the enterprise. Therefore, we offer the following formulas:

$$S_k = \frac{R_b}{X} \quad (1)$$

$$R_b = \frac{S_k \cdot X}{N} \quad (2)$$

$$R_b = I_m \cdot I_i \cdot I_{AT} \cdot I_a \cdot I_x \quad (3)$$

Here:

S_k - enterprise efficiency;

R_b - level of use of digital control;

X – amount of expenses;

N is the result indicator obtained by the enterprise (profit, gross product value, profitability level, etc.).

I_m – marketing index (for agricultural products);

I_i – index of introduction of innovative management technologies;

I_{AT} - information technology use index;

I_a – index of the level of application of automated systems;

I_x - employee motivation (activation) index.

As can be seen from formulas (1) and (2), one of the main factors in organizing digital management and increasing the efficiency of the enterprise is to determine the marketing of agricultural products.

(2) and using formulas (3) we get formula (4):

$$I_m = \frac{S_k \cdot X}{I_{AT} \cdot I_i \cdot I_a \cdot I_x \cdot N} \quad (4)$$

As can be seen from the fourth formula, the better the use of information technology and marketing principles in the enterprises of the agro-industrial complex, the more efficient the enterprise is. increases proportionally.

For example, "Asaka Based on the data of the last years (2020-2023) of the grain products" cooperative society, we obtained the optimal result of digital management. We have determined that for every thousand soums of the company's profits based on the above formulas, due to the effective use of digital management, it will receive an average of 455 soums of additional profit. Therefore, the more effectively the company's managers and specialists use digital management, the more the company's profit will increase in proportion to it.

In short, the more effectively digital management is used in enterprises and organizations, the higher the quality of the agricultural products produced in the enterprise, and the lower its cost. This means that the measures set on the basis of the organization of modern management are fully implemented. As a result, it becomes the basis for the stable development of our country and the further improvement of the well-being of our people.

REFERENCES

O'zbekiston Respublikasi Prezidenti Shavkat Mirziyoyevning Oliy Majlis va O'zbekiston xalqiga Murojaatnomasi, 20.12.2022 yil.

O'zbekiston Respublikasi Prezidentining qarori: "Sun'iy intellekt texnologiyalarini jadal joriy etish uchun shart-sharoitlar yaratish chora-tadbirlari to'g'risida" 17.02.2021. №PQ-4996.

O'zbekiston Respublikasi Prezidentining "2022 - 2026 yillarga mo'ljallangan yangi O'zbekistonning taraqqiyot strategiyasi "Insonga e'tibor va sifatli ta'lim yili" dan amalga oshirishga oid davlat dasturi to'g'risidagi" farmoni 28.02.2023 yildagi PF- 28 son.

Kuldashev E. "Yangi O'zbekiston rivojlantirishda raqamli boshqarishning ahamiyati" AndMI Mashinasozlik ilmiy-texnika jurnali. N.5 (Maxsus son) || tom 2022 y.

Kuldashev E, Xudoyberdiyev. M Raqamli boshqarish va kompyuter tizimi fanlarini o'qitish muammolari va yechimlari. "Mexatronika va robototexnika: muammolar va rivojlantirish istiqbollari" mavzusida I xalqaro ilmiy-amaliy anjuman 2021 yil. 164-170 bet.

Иванов В.М. Интеллектуальные систем. Екатирибургб Издательство Уралского университета, 2015.

Kuldashev E., Tadjidinov M. Sun'iy intellekt tizimlarini

joriy qilish taraqqiyot asosidir. "Mexatronika va robototexnika: muammolar va rivojlantirish istiqbollari" mavzusida I xalqaro ilmiy-amaliy anjuman 2023 yil.