



AI Digital Transformation of International Standardization

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Abstract: An intelligent digital approach to the transformation of international standardization is the integration of modern technologies and management methods in order to update and optimize standardization processes at the global level. The main components and benefits of this approach include the use of artificial intelligence, the automation of standardization processes, adaptive standards, cooperation and openness in standardization, and new opportunities for improving the efficiency, transparency, security, reliability, and flexibility of standards. The three components of confidentiality, integrity, and accessibility are considered as principles, security attributes, properties, fundamental aspects, information criteria, essential characteristics, or basic structural elements. Certification, cryptography, and cybersecurity are taken into account when standardizing security. Standardization concerns the implementation of complex artificial intelligence systems in various fields of human activity, such as transportation, medicine, education, construction, and others. To practically address the use of brain models with artificial consciousness and other intelligent systems, it is necessary to rely on their certification. Certification should be based on standards for the functional, ethical, and safe use of intelligent systems in various areas of life. Only certified systems should be accepted for use.

Keywords: intelligent digital approach, process automation, transformation of international.

I. Introduction

Digital transformation of standardization is the process of implementing digital technologies and approaches to improve, optimize, and automatic standardization processes in various fields, including industry, services, healthcare, education, and others. It involves the use of software and automated systems to simplify the development, implementation, and monitoring of standards. It also includes document management systems that help in the creation, editing, and distribution of standards. The use of analytical tools to monitor compliance with standards, analyzes their effectiveness, and identifies areas for improvement. This allows for faster response to changes and adaptation of standards to new conditions. The integration of IoT devices allows you to receive real-time data on compliance with standards, such as in production processes, which helps you, identify deviations in a timely manner and improve quality. Digital platforms can improve communication between various stakeholders, from standard developers to users. This can include open databases, collaborative workspaces, and other tools that facilitate knowledge sharing. The use of digital technologies to raise awareness about standards and provide training to users. Digital transformation allows for faster changes to standards in response to new market challenges and requirements, as well as changes in technology and legislation. In the process of digital transformation, it is important to consider data security and ethics, especially when it comes to standards related to personal

information or critical systems. Digital transformation of standardization helps to adapt standards more effectively and quickly to modern requirements, improves the quality of products and services, and ultimately increases the competitiveness of organizations [1].

II. Digital Smart Standardization

Digital Smart Standardization is the process of developing and implementing standards that regulate the use of digital technologies and AI systems in various fields [2-4]. This process establishes regulatory norms and rules that ensure the compatibility of technologies, the security, ethics and efficiency of digital solutions. Digital Smart Standardization allows different systems and platforms to interact effectively with each other and ensure data privacy, protect against cyber threats, including encryption and authentication methods.

Define standards for data collection, storage, and processing to ensure the effective functioning of artificial intelligence. Maintain the flexibility of these standards to adapt to rapidly changing technologies and market needs.

Participate in the development of standards for educational programs that teach specialists the skills necessary to work with new digital technologies and artificial intelligence. Digital intelligence standardization is essential for ensuring the

sustainable and secure development of technologies, as well as for building user trust in digital solutions.

III. Digital Standardization of Intelligent Systems

Digital standardization of intelligent systems is the process of developing and implementing standards that govern the creation, operation, and interaction of intelligent systems and technologies [5-7]. This is an important aspect that promotes integration, compatibility, and security in the field of artificial intelligence, machine learning, and other related technologies.

Let's explore the key aspects of digital standardization for intelligent systems.

1. Defining data formats, structures, and exchange protocols to ensure compatibility between different systems and platforms. This includes standards for handling large data sets and facilitating data exchange between AI systems.
2. Developing standards related to the ethical use of AI systems, data protection, and security measures. This includes commitments to safeguard privacy, ensure diverse algorithms, and promote transparency in decision-making.
3. Creating standards that allow different intelligent systems to interact with each other. This is especially important in areas such as the Internet of Things (IoT), where devices from different manufacturers need to work together.
4. Creating standards for the lifecycle management of AI systems. These standards cover the development, testing, implementation, and support of intelligent systems. They include quality assurance practices, security testing, and system updates.
5. Developing standards for the regulation and certification of AI systems. Establishing regulations and certification procedures that ensure that intelligent systems meet established standards and requirements.
6. Developing educational standards and training programs. Establishing standards for training professionals in the field of intelligent systems and related technologies to ensure the availability of qualified personnel capable of developing and implementing intelligent systems.

The digital standardization of AI systems provides a foundation for the sustainable and responsible development of intelligent technologies, allowing companies and organizations to leverage their benefits while minimizing risks and uncertainties.

IV. Formation of smart standards by AI assistants

Formation of smart standards using AI assistants is a process in which artificial intelligence helps to develop, implement, and maintain standards in various fields. Smart standards can include automation of processes, improvement of quality, and resilience to changes. AI assistants can collect and analyze large amounts of data to identify best practices and trends. This allows for the formation of standards based on actual information rather than theoretical models.

AI assistants automate the processes of creating and editing standards, which speeds up their development and minimizes human errors, from generating texts to checking for compliance. AI assistants organize feedback from users of standards and analyze how they are applied in practice. This allows for timely changes and improvements to standards.

Using machine learning techniques, AI assistants can predict how changes in technology will affect standards. This helps in creating more flexible and adaptable standards.

AI assistants can provide training materials and support to users, helping them to better understand and apply standards in practice. Smart standards can be integrated with other digital systems and platforms, improving their application and tracking. AI assistants can serve as a link between different systems, facilitating the exchange of information.

AI assistants monitor compliance with ethical standards, especially in the context of the use of artificial intelligence in various fields. This is important for ensuring transparency and trust in standards.

The creation of smart standards using AI assistants provides an opportunity for a more efficient, adaptive, and inclusive approach to the development and implementation of standards, ultimately contributing to the improvement of product and service quality in various industries.

V. AI digital international standard-setting collaboration

Digital international standard-setting collaboration in the field of AI is becoming increasingly relevant in the context of globalization and rapid technological advancements [8-15]. This collaboration involves cooperation between government agencies, the private sector, scientific institutions, and international organizations. Organizations such as the International Organization for Standardization (ISO), the International Telecommunication Union (ITU), and the



Organization for Economic Cooperation and Development (OECD) play important roles in developing standards for AI. They create working groups and committees that deal with issues related to ethics, security, data, and the ability of two or more information systems or components to exchange information.

There are various initiatives aimed at developing global standards for AI. For example, the Global Partnership on AI Ethics Initiative, GPAI, and other similar projects aim to bring together countries and experts to discuss and develop principles and standards. An important aspect of international collaboration is the creation of ethical norms for the development and application of AI. This includes the principles of standard harmonization, interoperability, transparency, accountability, fairness, and intellectual property protection. To ensure the compatibility and interchangeability of technologies, it is necessary to harmonize standards at the international level. This will allow different countries and regions to avoid fragmentation of standards and ensure cooperation and the exchange of knowledge and experience. The creation of platforms for the exchange of information and best practices between countries and organizations contributes to the faster development of standards. Conferences, seminars, and working groups will help to establish a dialogue between various stakeholders.

A relevant aspect of international cooperation is the regulation and compliance with standards. It is important not only to develop standards, but also to ensure their compliance in practice. This may include the development of monitoring and evaluation mechanisms, as well as the creation of conditions for the certification of technologies and systems. Taking into account the interests of various groups, including developing countries, is a key aspect of international cooperation. This will help to avoid a digital divide and ensure equal access to technologies and standards. AI can help in the automatic translation of standards into various languages, making them easier to apply and understand internationally.

Digital international cooperation on the development of AI standards is a complex but necessary process that requires the joint efforts of various stakeholders to achieve sustainable and ethical development of AI technologies.

VI. International Digital Transformation of Standardization

International digital transformation of standardization is a process of adapting and updating standards and regulations in response to rapidly changing technologies and the digital environment. Standards can be revised and updated to

incorporate new technologies such as artificial intelligence, blockchain, the Internet of Things (IoT), and big data. This ensures that new solutions are compatible and secure.

Motivated artificial intelligence plays an important role in the international digital transformation of standardization. Its motivational functionality and goals are determined by the developers and users of standards, which in turn helps to shape AI motivation in the context of digital transformation of standardization. The formation of artificial intelligence motivation in digital transformation of standardization is a complex and multifaceted task that involves both theoretical and practical aspects of AI motivation in thinking and action. Artificial motivated intelligence must have clearly defined goals that it must achieve. The goal can be set as a functional (ontology – erudition – reflection – utility – preference), which will guide the AI's motivation. Using reinforcement learning methods, the AI will be able to find optimal strategies for achieving its goals. It receives positive or negative reinforcement based on its success in completing the standardization transformation tasks. To motivate AI, it is necessary to ensure its ability to adapt to changing conditions and tasks. This includes learning from new data, knowledge, and experiences. In some cases, incorporating elements of emotional intelligence can be beneficial, allowing AI to better understand and respond to human emotions and actions. This enhances the digital transformation of standardization. It is important to consider ethical considerations and safety. It is crucial to ensure that the digital transformation of standardization does not lead to unintended consequences or harm. Artificial intelligence must be able to interact effectively with users and other systems in order to receive feedback and adjust its actions according to changing conditions. Research and implementation of motivation models, such as the hierarchy of needs or self-determination, can be useful in the international digital transformation of standardization. The development of AI motivation requires an interdisciplinary approach that includes psychology, computer science, and ethics. The motivation of AI to promote scientific and technological advancements is crucial in the international digital transformation of standardization in various fields.

In globalized world, it is important for countries and organizations to collaborate in the development of international standards. This simplifies access to standards, helps to avoid market fragmentation, and promotes the adoption of technologies worldwide. The international digital transformation of standardization makes standards more accessible to businesses and professionals, leading to their wider adoption and

compliance. It also enables the use of digital technologies for the development of standards. The use of digital platforms and tools for the creation and management of standards accelerates the process of standard development and implementation.

In the context of international digital transformation, standardization, special attention is paid to cybersecurity and data protection. New standards must take these aspects into account to ensure the reliability and protection of information. It is important to train professionals who will work with the new standards, as well as to ensure that their significance is understood by businesses and society as a whole.

International digital transformation of standardization is an important step towards creating a more efficient and secures global economy that can quickly adapt to changes and innovations.

VII. Conclusion

Artificial intelligence is constantly improving based on a productive system of rational and moral values, established by practical life, and is approaching the cognitive capabilities of natural intelligence. Researchers can implement, in a Smart format, an international transformation of the standardization of distributed multimodal, hierarchically functional, interdisciplinary artificial intelligence systems. Digital twins, ensembles of intelligent agents, interacting AI assistants, intelligent robots with spectroscopic vision and bioinformational holographic memory, smart platforms, and other intelligent systems will become indispensable assistants in industry and other areas of human activity, fully complementing natural human intelligence in the high-tech labor market on an international scale.

Motivated, adaptable artificial intelligence in the international digital transformation of standardization will combine new advanced intelligent technologies in various fields of human activity.

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