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DIGITAL REVOLUTION: TECHNOLOGIES SHAPING THE FUTURE

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Annotation: In this article, the digital revolution: the meaning and essence of the role of technologies that shape the future. Today it is one of the most relevant topics. How it benefits the future.

Key words: digital revolution, technologies and automating work processes

Today's world is experiencing rapid changes year by year, and many of these changes are happening due to the digital revolution. Digital technologies have become so embedded in our lives that today, it is impossible to imagine not only our daily activities, but also the development of socio-economic sectors without them (Automating work processes, simplifying our daily lives, improving the education and healthcare sectors).

The 21st century is truly the age of technology, as technologies are being developed for almost every activity. Below, we will talk about the history of technology and the technologies that will define the future. Through technology, people have succeeded in improving lives and bridging distances. The history of technology dates back to the early Paleolithic era and has continued to the present day. Looking back, the 10th -12th millennia BCE were also successful times for ancient people. By inventing technologies, they could freely trade with other groups and gain significant benefits. Metallurgy and industrial technologies developed during the Bronze and Iron Ages (the Bronze Age from 3300-1200 BCE, and the Iron Age from 1200-500 BCE).

By the 18th century, the Industrial Revolution began, affecting almost the entire world, particularly in Great Britain, where the steam engine was created. This invention began to be widely used in factories and plants, automating processes. Alongside, the steamboat and other forms of transport were invented. These advancements made it possible to deliver goods across vast distances quickly and efficiently.

In the late 19th century, Thomas Edison invented the light bulb (after 1,000 failed attempts, succeeding on the 1,001st). This century saw the rise of electrical technology, with communication tools like radio, telegraph, telephone, and television emerging. People's intellectual development also progressed significantly during this time. Additionally, as many countries shifted to market

economies in the late 19th and early 20th centuries, healthy competition also took shape. The 20th century became a flourishing era for technology, with the development of tools that encouraged humanity to think and innovate. Most notably, computers were developed, and microprocessors were created in 1970, eventually shaping infrastructure. Computers of this period were not as convenient as today's—they were large and cumbersome—but they enabled mathematical calculations to be automated, making tasks that took a day to complete possible within 2-3 hours. Finally, by the late 1990s, the Internet emerged, revolutionizing the ways people access information, communicate, and trade, and becoming the most prominent invention of the technological age. This development opened up fields such as artificial intelligence, the digital economy, augmented reality, virtual reality, cybersecurity, and autonomous transport.

Artificial intelligence as the future expansion of human intelligence - the exact and formal history of artificial intelligence (AI) creation is not fully documented, as it is based on mathematical theories. The history of AI is often traced back to the 1956 Dartmouth Conference, which brought together many computer science researchers including John McCarthy -the organizer of the conference and the person who coined the term artificial intelligence.

Allen Nyuell: Co-created the first expert system, The Logic Theorist, with Herbert Simon, contributing to computer science concepts such as decision-making and problem solving algorithms.

Herbert Simon: In partnership with Allen Newell, helped develop early AI and received a Nobel Prize for his contributions in psychology and economics.

Other notable participants included Claude Shannon, Nathaniel Rochester and others who contributed their theories and insights.

Types of Artificial intelligence is commonly classified into three types:

Narrow AI: Designed to perform specific tasks within a particular field(e.g. recognizing images or processing language)

General AI: A level of intelligence equivalent to human cognition. While currently non-existent, researchers are working on its development.

Super AI: This future AI could surpass human intelligence, think independently, and make decisions autonomously, it has no yet been created but is a long-term goal in AI development.

Core fields in AI

AI encompasses various fields:

1. Machine learning

2. Deep learning
3. Computer vision
4. Natural language processing (NIP)

AI offers many benefits to society including:

Quick and accurate

Decision-making

It can analyze and solve complex problems almost instantly saving time , However, AI also presents some challenges

Data privacy risks

Potential job reductions

Cyber security: Cyber security consists of technologies aimed at protecting computer systems from cybercrime, fraud, and malicious software. Cyber security helps prevent incidents where individuals are deceived by phishing calls, lose money, or have their devices compromised by viruses.

Key elements of cyber security:

1. Data protection
2. Network security
3. Application security
4. Cloud security
5. Personal security

The CIA triad of cyber security:

1. Confidentially: Ensures only authorized individuals access the data
2. Integrity: Maintains the accuracy and consistency of data
3. Availability: Ensures data and systems are accessible to authorized users.

With globalization, cyber security has become more robust, reducing the frequency of cybercrimes and strengthening defense against advanced hacking attempts. The goal is to eventually eradicate cybercrime as cyber security evolves. The digital revolution has integrated technology into daily life and economics, reshaping the future. Robots are now used in sectors, improving efficiency, productivity, and modernity. They also assist elderly disabled individuals, enhancing their quality of life.

In my conclusion, the success of the future depends on responsible and informed use of technology. Digital literacy, data security and the protection of personal information are vital priorities.

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