

SOME BASIC ISSUES OF DIGITAL TRANSFORMATION

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1. Digital transformation

All over the world, digital transformation began to be mentioned a lot around 2015, and has been popularized since 2017. In Vietnam, this term became popular and began to be discussed in 2018. The Prime Minister approved the National Digital Transformation Program on 03/06/2020.

Digital transformation is the next development of computerization, obtained thanks to the great progress of breakthrough new technologies, especially digital technology.

Digital transformation is the process of overall and comprehensiveness of individuals and organizations in terms of way of life, way of working and production methods based on digital technologies.

The connotation of the digital transformation will continue to be clarified through the following issue.

2. The fundamental difference between digital transformation and computerization

Computerization, or the application of information technology, is the digitization of an existing process, according to the existing operating model, to provide existing services. Digital transformation is the digitization of an entire organization, it is a change in new processes, new organizational models, new methods of providing services or providing services.

3. The fundamental difference between digital transformation and science, technology innovation

Digital transformation is the transformation of operating models based on digital technology and digital data. On the contrary, science, technology and innovation are the creation of new values based on breakthroughs in scientific research and application of technology.

Digital transformation and innovation in the context of the Fourth Industrial Revolution are essentially the same.

4. Digital technology

In our normal life, people communicate with each other by using analog signals, expressing their emotions in a variety of voices. In the digital environment, computational devices communicate with each other by using digital signals,

represented as binary signals of 0 and 1. Digital technology, understood in a broad sense, is the technology of processing digital signals, or information technology.

In the context of the Fourth Industrial Revolution, digital technology, in a narrow sense, is a higher development, the next step of development of information technology, allowing faster calculations, more data processing, transmitting larger capacities, at a cheaper cost. In a broad sense, digital technology is one of the main technology groups of the Fourth Industrial Revolution, represented by cloud computing technology, big data, artificial intelligence, blockchain, virtual reality ... All in all, the way of understanding in a broad sense is more common.

The four typical digital technologies that promote digital transformation are artificial intelligence, the Internet of Things, big data, and cloud computing.

What is Artificial Intelligence?

Humans strive to make machines have human intellectual capacities and call it artificial intelligence. In this sense, artificial intelligence has to continue to develop for a long time to get closer to that. But in a narrower sense, as artificial intelligence aims to "strengthen human intellectual capacity", there have been great strides in the past 2 decades.

Machine learning is a branch of artificial intelligence that aims to make machines capable of learning like humans. Knowing how to learn is to gain new knowledge on your own. Due to the increasing data, the computing power is getting stronger, so breakthrough developments in machine learning have been created.

Deep learning is a major, groundbreaking, important development direction of machine learning. Deep learning is based on simulating neural network structure and human brain activity to process and analyze big data, including both structural and unstructured data.

Artificial intelligence can be compared to the human nervous system.

What is the Internet of Things?

The Internet of Things (IoT) is a foundational technology of the Fourth Industrial Revolution. The Internet is a network connecting devices such as computers, smartphones ... to exchange and share data and the Internet of Things is a network that connects everything together to do the same thing. Thanks to smart sensors and networking, for the first time in the history of mankind, inanimate objects, household items, such as electric fans, microwave ovens, or branches, blades of grass "raise their voices" and communicate with each other and with people. The Internet of Things plays an important role in the connection between the real environment and the digital environment.

The Internet of Things can be considered as the human senses.

What is big data?

Data is generated from billions of smartphones, sensor devices that connect all things, and human activity in the network environment. Every day, the data generated can be up to the equivalent of data stored in a billion DVDs before. Technology used to take a very long time to process such data, now digital technology allows processing and analysis in a much shorter period of time to extract information, knowledge or make decisions appropriately. Technology used to process structured data, then digital technology now mainly processes and analyzes unstructured data. Unstructured data accounts for 70-80%, so it contains more information than structured data.

It is possible to consider big data as the human brain.

What is cloud computing?

Cloud computing is a technology that allows computing capacity to be located in virtual servers, called clouds on the Internet by providers instead of in home and office computers on the ground, for people to connect, using as services when they need them. Roughly speaking, cloud computing is like grid electricity. Individuals, households, businesses instead of investing in their own computing servers, like generators, use cloud computing services like grid electricity, use them to pay the cost of getting there without having to worry about operating and managing.

Cloud computing can be likened to human muscle.

Digital transformation is about creating new things, which have no precedent. The era of digital transformation is an era of the impossible becoming possible and vice versa. And the best way to predict the future is to actively create it.

The most important digital transformation is to transform thinking and perception. It can be done immediately, since it only depends on ourselves.