

Martin Ehl
martin.ehl@hn.cz



How to make technology a business.

The long road through AI and quantum computers

at the computer screen, which shows footage from one of Prague's busy intersections. Erik Feldman from VDT Technology explains to me what can be done when you combine the camera footage with a program his company offers that is designed to work with really huge amounts of data analysed by artificial intelligence.

You can count cars, you can filter their different types, you can detect license plates. You can use it to control traffic lights and other intersections, you can do a lot of things.

VDT Technology is doing something similar for the waterworks in Železná Ruda - in cooperation with Siemens, they have developed a "digital twin" of the waterworks. The subject of the analysis is water, its flows, its purity. By collecting data from various sensors, the waterworks operator can predict different scenarios in the digital twin and manage water treatment more efficiently. And at the same time keep it safely under control as part of the critical infrastructure.

"The technology is good, but it has to be used for distribution, it depends on the operator if and how he wants to use it," explains Feldman, whose company offers several other and diverse programs from Israeli companies in the Czech Republic. Each time it has to be adapted to the customer's wishes and exact needs. It's the connection between the physical and digital worlds, where only through concrete examples does one understand what so-called big data is good for, how it can be collected, how it can be processed - and above all how to use the results.

They're not self-sustaining unless there's man and not make a decision. By analysing data from video cameras, for example, it is possible to protect the security of a hospital. After the shooting at the University Hospital in Ostrava in December 2019, VDT Technology was involved in creating a system there that could help prevent similar events. The speed and accuracy of data analysis is key, as 1 terabyte of data per day comes out of the hospital cameras alone. For example, the speed, agreement and warnings resulting from the CCTV footage were lacking, according to the investigation, in the search for the shooter last December by the security guard of the Faculty of Arts and the Police of the Czech Republic.

Big data, its fast analysis and processing Artificial intelligence is also used to address the risks associated with the rapid evacuation of large buildings where there are many people - typically, for example, shopping galleries. In recent years, Europe has lived in fear of terrorist attacks, but today, safe security experts warn of attacks that have to spread panic in Western society, which organized by Russian intelligence. Having a model of how to evacuate a shopping mall full of people as quickly and efficiently as possible and to detect potential weak spots in time is a necessity for every security manager. I saw such a model for a large Czech shopping mall in the VDT Technology office.

Of course, the data from the cameras has

agency, but Big Brother, backed by neural a network that tracks your purchase trajectory, which it then anonymises (yes, GDPR) and from which it can then infer what and how much you and other customers liked in the store.

I was reminded of the lesson I learned at VDT Technology when reading recent reports that some investors think the current wave of huge interest in anything involving artificial intelligence is overblown. The wave of debate was sparked, for example, by a letter from Florida-based hedge fund Elliott Management to its investors, claiming that the current stock price appreciation of Nvidia, whose chips power artificial intelligence, is a "bubble" and that the price does not reflect reality, and that AI-related applications

They are disappointed because, influenced by science fiction films, literature and marketing, they think that the world will be transformed by artificial intelligence at the snap of a finger. Or maybe they are more sceptical about it than before.

As an everyday user of artificial intelligence, I also have my doubts about its practical use. For example, I have not yet come across a program that can accurately transcribe a conversation and, moreover, translate it accurately. And I've done dozens of them in the last few years in an effort to save myself the work and work with several other much

larger languages.

So far, it seems that, just like in engineering, biotechnology or chemistry, it is a relatively complex discipline to translate a laboratory model into production practice in the digital economy, and making it into a working business model is even more complicated.

It was from this perspective that I approached with some distance the holiday reading of the Czech translation of the new book by the American physicist and science popularizer Michio Kaku entitled "The Quantum Revolution. How quantum computers will change the world". It is a book that explains the principle of quantum computers and outlines the possibilities of quantum economics. It reads very well, but because of the aforementioned difficulties of the real economy.

guilt, just about anything where unimaginable computing power combined with the imagination of scientists is needed.

While reading it, I remembered novels predicting a bright future full of space travel that I found in my parents' old library, written in the 1960s. Back then, mankind succumbed to the dream that brought the first space voyages and the American voyages to the moon. These were then halted by relentless economic and political realities.

But without dreamers and scientists like Michio Kaku, humanity would not have set small goals, just as it would not have

without businessmen like

Erik Feldman, who are trying to find practical applications for the most powerful technologies and thus fulfill the wishes of the third party, the investors who are putting a lot of money into all this and hope that one day it will come back to them.

But today, as in the bold plans of the 1960s, geopolitics speaks and will speak - much more than it has for the last 30 years. In his book, for example, Michio Kaku deals only very marginally with a topic that the whole digital world fears in the context of quantum computers: the proliferation of ciphers.

Who will be the first to put into everyday practice a usable quantum computer that can be deployed to uncover the secret communications of pro



Artificial intelligence can create such an image and improve sales in a shoe store.

Photo: Midjourney AI

commercial applications. The sales manager of a shoe store will be happy to look at a data-processed map based on the camera footage to see which rack people stopped at most often or what didn't interest them at all. So when you go shopping and see a camera in the store, it doesn't have to be just to protect you from evil.

Intelligence is not sufficiently developed to be capable of commercialisation.

"The anticipated use of AI will never match the cost, will never work properly, will consume too much power or be trusted," warned the letter, quoted by the Financial Times.

In recent months, companies such as

Microsoft, Meta and Amazon have invested tens of billions of dollars in infrastructure related to the development of artificial intelligence, where there is talk of huge energy consumption. Ordinary users are experimenting with generative AI in programs like ChatGPT - and many of them

Kaku's thoughts and ideas on how to deal with the advent of artificial intelligence based on existing digital computers are more reminiscent of science fiction than the reality of the next few years or decades. In it, Kaku announces the end of the silicon age and the advent of quantum computers, which somehow still cannot be made to be practically usable. Those that do exist are visited on excursions because of the cooling system, which is enormous compared to the computer itself. So most of the book is about what might happen when they are all around us and can be used to trace the origins of life and the universe, to feed the planet or produce enough energy, to edit genes and treat cancer.

tivist or competitor, it will gain an advantage that will be difficult to withdraw. This is what has been said about the development of various models of artificial intelligence, for example - and the world has been leapfrogged in its development by the United States and China. But it is one thing to have the technology; it is another to know how to use it and exploit it properly.

Yet, the future is already here. Thanks to a European consortium, the first quantum computer in the Czech Republic will be located in Ostrava, where they have already prepared a room for it. Its cost will be about 180 million crowns. According to Lupa.cz, its acquisition is now in the public tender phase, which is dragging on a bit. So it seems that the quantum revolution is being held up by European paperwork.