

# Weird Technologies

That Shape Our Future

# Google

weird technologies




weird technologies - Google-haku

weird technologies **that will change the world in the next decade**

weird **new** technologies

weird **wearable** technologies

 weird... - [google.fi/search?source=hp&ei=adO8X8DjNtLggweU...](https://google.fi/search?source=hp&ei=adO8X8DjNtLggweU...)



# Charmin RollBot: The toilet paper delivery bot

A hand in a white shirt cuff reaches out from the left side of the frame towards the center. The background is a dark, blue-toned digital space filled with faint, glowing elements: a large sphere with horizontal lines and dots, resembling a quantum state or a data visualization; various binary strings like [01101] and [10110]; and the letters 'QU' and 'B' in a light, sans-serif font. The overall aesthetic is futuristic and scientific.

# The Quantum

Superposition

Quantum encryption

QU

Entanglement

BIT

Teleportation

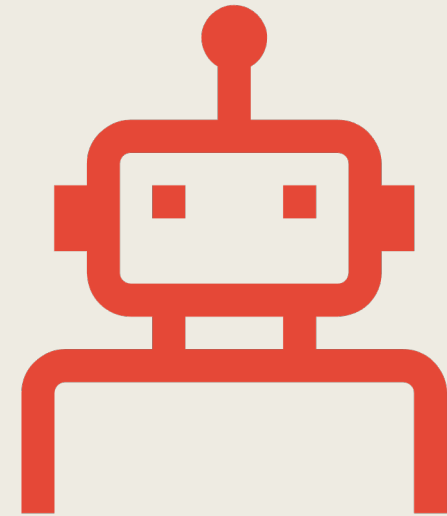


# 1. Productivity

The development of business processes has come so far, that significant steps of improvement are harder and harder to make anymore.

Material management, logistics, production, service processes, and marketing are areas where the optimizing capabilities of a quantum computer can give a significant edge in improving productivity.

As a single example, a manufacturing robot has been programmed to be as efficient as it possibly can using modern technology. With a quantum computer, the trajectories of a welding robot could be optimized multiple times, which would bring cost-effectiveness and improve energy efficiency.



## 2. R & D

There are industries, where the amount of data is so massive, that it is almost impossible to model the operation and dynamics of the object. Research is done by experimentation and modeling and still desired precision can't be reached.

For example, the medical industry is looking to quantum computing for solutions to simulate molecular dynamics, to avoid testing through trial and error.

R & D and conclusions become faster and more accurate, and we'll have new medicine and vaccines faster at our disposal to combat new diseases.

### 3. Climate change

What we know about our climate today, is the result of thousands of scientists and their work, but there is still much to discover.

What does the climate system consist of, how could the effects of climate change be modeled and combined with other fields of science to find even better solutions?

These are some of the questions we want quantum technology to solve, and we believe that the new computing power will bring about these solutions.

Quantum sensors are also helping combat the effects of climate change, as they gather information more accurately than modern sensors.





## 4. Forecasting and Foreseeing

AI and machine learning have already brought great change to analyzing, forecasting, and foreseeing. However, there are still areas where the amounts of data are so massive, that the computing power of traditional computers isn't enough to analyze and produce accurate forecasts.

Weather forecasting could be significantly more accurate with the help of a quantum computer. Thanks to the computing power of a quantum computer, banks, and financial businesses can more easily tackle fraud, also estimate risks and profits.





## 5. Traffic

In co-operation with quantum computer company D-Wave, Volkswagen has carried out traffic optimization tests using quantum algorithms. The goals of traffic optimization are saving time and energy, minimizing emissions, and keeping traffic fluent. In a test in Lisbon, bus drivers could avoid traffic situations even before they emerged.

In the future quantum computers can control the movements of autonomous vehicles, while regarding ever-changing circumstances and environmental changes.

Italian telecommunications operator TIM is the first in Europe to implement quantum computing algorithms, in planning its next-generation mobile networks.

## 6. Solving complicated problems

*(and winning the game of hyper competition)*

A quantum computer can help businesses solve customer's problems a million times faster than their competitors. A traditional computer functions in a linear way between ones and zeros. A quantum computer works differently - ones and zeros function simultaneously in a superposition.

Complicated problems are complicated because there are multiple layers. In his book "Decoding Reality" Physicist and professor, Vladko Vedral uses a library as an example. For a traditional computer, finding a specific title out of a million titles in a library would take a couple of weeks, when a quantum computer could do the same in a matter of minutes.

The capability to solve complex and multi-layered problems will certainly give a competitive edge for pioneers.

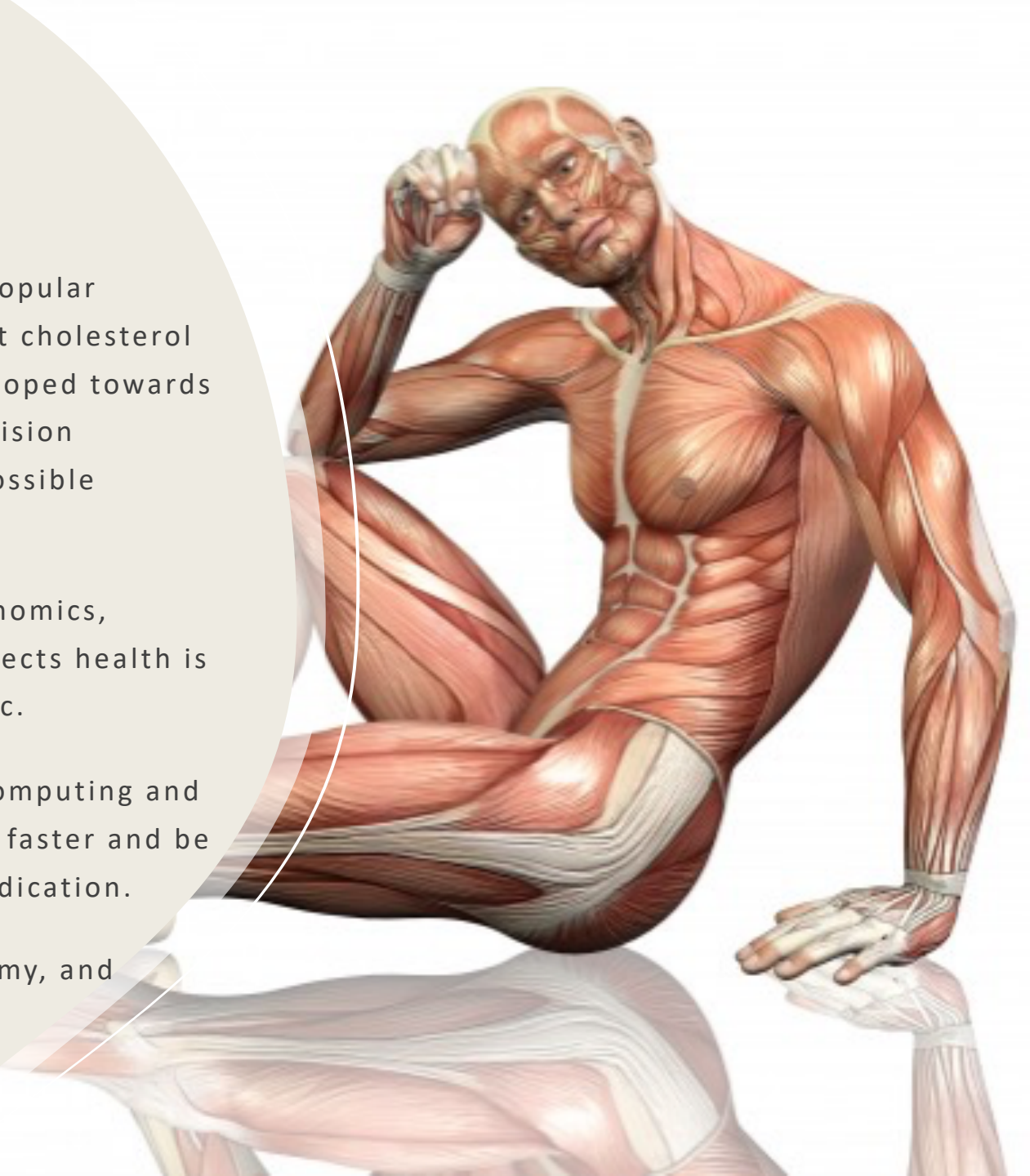
## 7. Individual healthcare

15 years ago, cholesterol pills were one of the most popular medicines on the market. Later it was discovered, that cholesterol pills weren't for everybody. Medical science has developed towards a more personalized direction, more patients get precision medication for their ailments. But a big leap is still possible through quantum technology.

A human being consists of many layers of "omics", genomics, metabolomics, microbiomics, and so on. What also affects health is the environment, social conditions, mental factors, etc.

With quantum technologies - for example, quantum computing and sensors - the whole of a person can be observed even faster and be provided with proper individualized measures and medication.

The impact will be significant on public health, economy, and welfare.



## 8. Information and cyber safety

The biggest threat of quantum technology is, that it could cause the breakdown of modern encryption methods.

Post-quantum cryptography projects develop encryption methods that can't be broken with a quantum computer. In May 2020 SSH.COM received significant funding from Business Finland for a post-quantum cryptography project.

Samsung has introduced a quantum-safe phone for the 2020 market.

There are many views on the threats to cybersecurity, but the most important thing is to understand what would be at risk in a company's security if a quantum machine could break it. Companies must be aware of this now and act.



## 9. Machine learning

Quantum machine learning is one of the most interesting areas of quantum computing.

When a machine can handle vast amounts of data and learn individually how to solve massive problems, humanity will see development, which might yet be difficult to comprehend.

Targets of use and effects are foreseen for example to agriculture and food production, and the aviation industry.

Quantum machine learning (QML) is based on traditional computer-quantum computer hybrids.

QML is applied for example in different optimizing and measuring tasks.

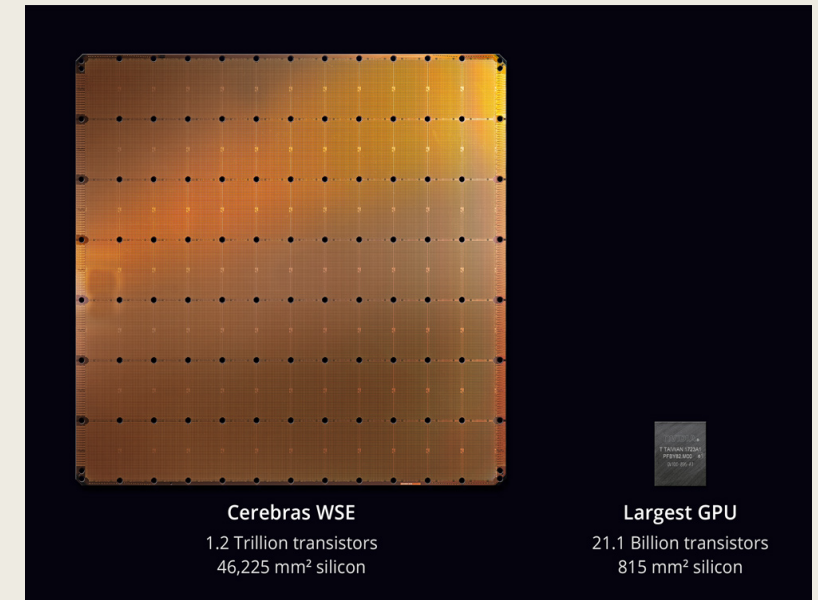
# 10. Multifaceted utilization of technology

Many have brought up in discussions that overhyping should be avoided, and to recognize that even traditional technologies still have their place and will develop further.

For example, in space exploration, quantum technology can be useful in some applications, but a large bulk of the modeling work might be done by CPU and GPU computing also in the future.

Also, alternative means for quantum and digital computers are being researched.

Every company strives to serve its customers in the best possible way. To succeed in that they need to use the most relevant and appropriate technology. Although current technologies will still prevail for a long time, quantum technologies can provide a significant competitive edge in some areas already soon. That is why getting acquainted with quantum technologies and understanding when and where to apply them should be a priority.



**Cerebras Systems, a California-based startup dedicated to accelerating Artificial Intelligence (AI) computing speeds, has unveiled the largest chip ever built**

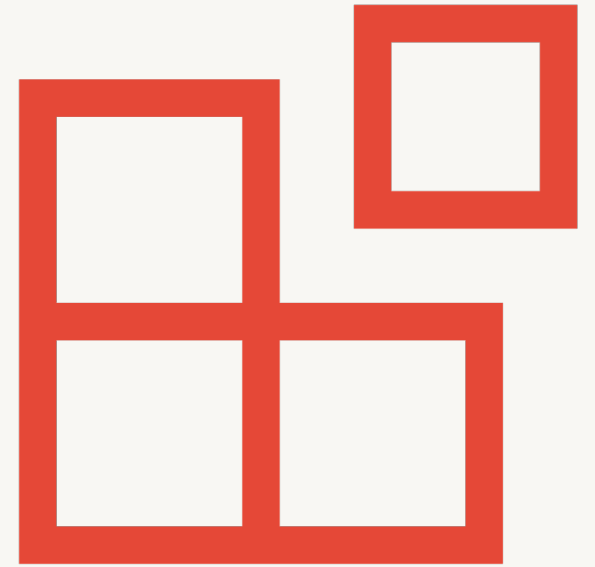


"Technology is no longer a limiting factor. Traditional technology is easy, it's the processes that usually make it complicated, self-made complexities. Formulating the problems fed to the quantum computer into algorithms is hard. When someone brings a quantum computer to the market, it's already too late to formulate your problems for the quantum age."

- **Jaakko Hyvärinen**, Accenture Oy



**2040**



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Classical singing = my favourite hobby

