TOP 10 EMERGING TECHNOLOGIES OF 2018

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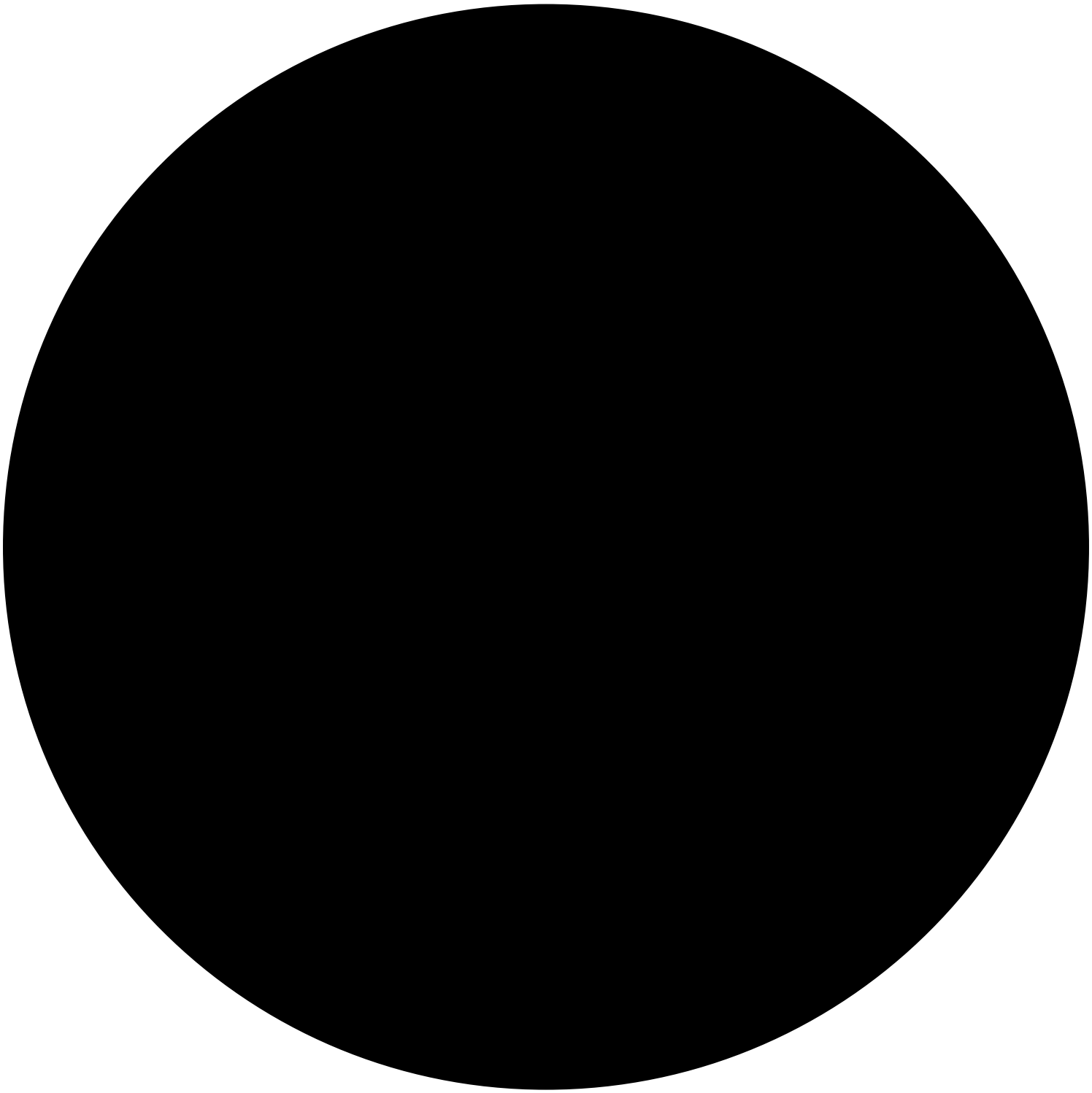

The World Economic Forum convenes each year a panel of experts and scientists to select a shortlist of ten emerging technologies for their potential to improve lives, transform industries, and safeguard the planet. In this 2018, the list stands out for a significant weight of advances related to health.

The 10 technologies chosen in 2018 are the following:

Augmented reality: The technology that adds virtual information and three-dimensional animations to real physical environments is going to become commonplace. Although the technology is not new, it is going to take a significant leap in terms of sophistication and practical uses. Among other things, augmented reality will help surgeons to visualize tissue in three dimensions under the skin of patients, and will make holographic guides available to us on museum

visits.

Personalized medicine: There are advanced diagnostic tools ready to provide medicines tailor-made for you: tools that detect and quantify multiple signs of a disorder to determine your probability of contracting a disease. Many of these diagnostic tools are already being used in cancer cases. One of them prevents women with certain types of breast cancer from having to receive chemotherapy. They can also be used to diagnose endometriosis, without the need for surgery, as well as neurological diseases such as autism, Parkinson's or Alzheimer's, which are currently diagnosed by evaluating symptoms.

Molecular design using artificial intelligence: The achievement of new medicines and materials can no longer depend on being lucky with a finding in a certain scientific experiment. Instead, machine learning algorithms will analyze all the tests performed, generate patterns, and predict which molecules may be successful. In addition to speeding up processes and reducing chemical waste, artificial intelligence will allow pharmaceutical companies to identify and develop new drugs at high speed.

More competent virtual assistants: Technologies such as Siri or Alexa will become more sophisticated assistants that will help us do more than play a certain song or tell us what the weather will be like today. With the help of artificial intelligence, they will be able to investigate in the cloud and draw up an outline of important topics for each person, without prior guidance. Among other things, they will be able to help doctors find relevant research for complex cases, and even discuss different possible treatments with them.

Implantable cells that provide drugs: For people who have to take a drug on a regular basis, the idea of having a tiny drug factory inside their body may be appealing. Until now, the use of implants was limited because they needed to be accompanied by immunosuppressive drugs so that the body would not attack the implant. Now instead, the technology is sophisticated enough so that it is not rejected by the immune system, and can be used to treat cardiovascular diseases, tuberculosis, diabetes, cancer, or chronic pain.

Gene drive: The intentional alteration of genes is a controversial issue. And although genetic engineering also presents ethical dilemmas, it has enormous power to fight diseases, or eliminate pests such as malaria-carrying mosquitoes. Recently introduced techniques such as CRISPR facilitate the introduction of genetic material into specific points on chromosomes.

Algorithms for quantum computing: Computers that use quantum mechanics to perform calculations can solve problems much more efficiently than a conventional computer. Although its introduction has been delayed, research has made great progress and a growing number of academics are developing quantum software. Once refined, quantum computers will be able to simulate nature and help design materials.

Plasmonic materials: These types of materials are capable of manipulating electron clouds and light at nanometer scales, which can increase magnetic memory storage and the sensitivity of biological sensors. Several companies are developing different applications, such as a device that can distinguish viral and bacterial infections, or light-activated nanoparticles that could treat cancer without harming healthy tissue.

Lab-grown meat: Lab-grown meat could help reduce the environmental cost of meat production or the suffering of animals in slaughterhouses. Different startups that have undertaken this activity receive millionaire investments, although the production costs are still very high, and the tasting tests have not had very satisfactory results. With the improvement of technology, artificially created beef or chicken meat could find its way into our kitchens.

Electro-drugs: Electro-drugs could help us reduce our reliance on drugs to treat diseases, as they treat ailments using electrical impulses. One of the approaches being developed, which targets the vagus nerve - the system that sends signals from the brain to most organs - has the potential to

regulate the immune system. With this, it could transform the treatment of many diseases; in the last decade it has been used to treat depression or epilepsy, and now it could also be applied to migraines, obesity or rheumatoid arthritis.

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