



Futurist Jack Uldrich's Predictions for 2022

The future does not always arrive with a bang. The ten trends outlined below may not alter the world in an immediately noticeable manner in 2022 but they will arrive this year, and each holds the seeds to make the world a more beautiful place. Leaders are encouraged to take the trends seriously because they just may arrive sooner than expected.

1. **Super white paint replaces air conditioners.** Researchers at Purdue University have created the whitest paint in the world. The paint can not only reflect 98 percent of the sun's light away from a building, it can also emit infrared heat. This unique combination allows a surface coated with the paint to cool a building below the outside temperature without consuming any power. This means that homeowners will save money on their electricity bill; the demand for air conditioning units and HVAC systems will go down; and society will have a powerful new tool to combat growing global CO2 emissions.
2. **Environmental-friendly jet fuel.** In my predictions for 2021, I mentioned direct air capture technology and said it had the potential to create several "game-changing" products. In late 2021, Iceland deployed the world's largest direct air carbon capture machine and it, literally, sucks carbon dioxide (CO2) straight out of the air. It is an impressive technology but at the current time there isn't much the company can do other than pump the CO2 back into the ground. Fortunately, researchers at Oxford University have developed a low-cost catalyst that can convert CO2 into jet fuel. If the technology is scalable, air travel will move from being one of the world's largest sources of CO2 emissions to a "net zero" industry.
3. **Food from thin air.** As strange as it sounds, it is now possible to make food from thin air. Researchers at the Max Planck Institute as well as a Finnish startup, Solar Foods, have demonstrated it is possible to remove CO2 from the atmosphere and feed the carbon to microbes which, in turn, can convert it into a protein powder. The powder can then be mixed with water or other products and is suitable for consumption by humans and animals. The protein has twice the caloric value of corn, soy, wheat, and rice, which suggests that some of the land currently used for these popular crops can be converted back into wild forests.
4. **Cleaner and more affordable water is on the rise.** Access to clean water remains a serious issue in many parts of the world and extended mega-droughts are causing farmers across the globe to stop growing crops in certain drought-stricken areas. Researchers at the University of Texas have, however, employed advances in nanotechnology to create new materials that can increase desalination efficiency by 30 to 40 percent. The precisely manufactured membranes will require significantly less energy to filter out contaminants and salt and will make fresh water more accessible and affordable.
5. **Bye-bye batteries?** The world has an almost insatiable appetite for energy. Recently, lithium batteries have been the most common type of batteries—powering everything from smartphones and laptops to all-electric vehicles. Scientists at



Northeastern University claim they have made **a “holy grail’ discovery that could usher in an era of solid-state physics** and facilitate the creation of “spintronics”—devices that leverage the quantum structure of materials to create electron “spin.” Unlike traditional battery powered devices that rely on chemical energy, spintronic devices harness magnetic energy. (On a side note, lithium batteries may soon become more affordable if researchers in China are successful at **extracting lithium from seawater.**)

6. **Truly recyclable plastic.** Only 15 percent of all plastics are collected for recycling every year. This is, in part, because certain plastics are hard to recycle. **Carbios, a French startup, has recently opened a large demonstration plant that uses a proprietary enzyme to break down PET**—one of the most common single use plastics—in less than 12 hours. The resulting monomers can then be purified and remade into new plastics. If successful, fewer microplastics will pollute the world’s oceans and plastics may become seen as less harmful to the environment.
7. **Eelgrass: The Next Superfood.** In the Bay of Cadiz in Spain and in the Sonoran Sea in Mexico, tiny green grains cling to the base of the eelgrass that grows in these waters. Long overlooked as a potential food source, **the grains are gluten-free, high in Omega-6, and contain twice the amount of protein as rice.** Better yet, the grain, which is also known as *Zostera Marina*, is grown without freshwater or fertilizer. Expect chefs, “foodies,” and environmentally-conscious shoppers to begin demanding more of this earth (and ocean)-friendly “superfood.”
8. **Your “bad” cholesterol is about to get lower.** High cholesterol is a major contributor to heart disease and stroke. Now, a team of scientists at the University of Pennsylvania and Verve Therapeutics have created **a new gene editing tool that could potentially lower LDL cholesterol**—the “bad” cholesterol—by as much as 60 percent in monkeys. The gene-editing technology targets the PCSK9 gene and prevents it from damaging cells whose job it is to remove LDL cholesterol from the blood. Expect the technology to start being tested in humans in the coming year.
9. **Sticks and stones can still break your bones but those bones will now heal in record time.** Researchers at Duke University have used 3D printers to **create a futuristic new biomaterial implant** that can easily fit into a broken bone to promote and facilitate healing. The researchers are also working on a nanocarrier drug implant that can be taken orally to treat bone loss caused by osteoporosis.
10. **Aging begins to be seen more like a disease**—something to be treated rather something simply to be endured. **Researchers in Japan have developed a new vaccine to slow aging,** while **researchers in China have created a “fountain of youth pill” that could extend human life by more than 10 years.** In both cases, the respective technologies flush out “senescent” cells—cells which have stopped dividing and are associated with a variety of age-related illnesses and ailments.

Jack Uldrich is a leading global futurist, the author of 13 books, and is a popular keynote speaker.

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